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Oribatids from Madagascar III. (Acari: Oribatida). (*Acarologica Genavensia* LXXXIII)[1]

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Oribatids from Madagascar III. (Acari: Oribatida). (*Acarologica Genavensia* LXXXIII.) – Forty-four species are identified and listed, twenty of them are described as new to science. For two species it was necessary to establish two new genera: *Leptoppia* gen. n. (Oppiidae) and *Lemurobates* gen. n. (Tegoribatidae). A new definition of *Passalozetes* is given.

Key-words: Acari – Oribatida – Taxonomy – New species, new genera – Madagascar.

INTRODUCTION

The present contribution[2] is a continuation of my earlier works (Mahunka 1993, 1994) concerning the Oribatid fauna of Madagascar. The reasons for, and the goals of, this work were discussed in the above mentioned papers.

This article comprises a list with 44 identified species of which 20 are new to science, two of them requiring the establishment of new genera: *Leptoppia* gen. n. (Oppiidae) and *Lemurobates* gen. n. (Tegoribatidae).

In the descriptions I generally apply the terminology used in several publications by Norton (e.g. 1982) and Behan-Pelletier (e.g. 1984) based on Grandjean's work. The setation of the parts of the body and the legs is expressed in formulae. The sequence of the anogenital formula is: number of genital, aggenital, anal and adanal setae. Within the setal formula of the palps and the legs, the solenidia of a given segment are marked with the symbol +. The measurements correspond to maximum values in the present material; length is measured from the rostral apex to the farthermost opposite point of the body, width refers to maximum body width (in the case of movable pteromorphae to maximum width without pteromorphae).

[1] New title for the series "Neue und interessante Milben aus dem Genfer Museum I. - LX." and "New and interesting mites from the Geneva Museum LXI. - LXXX.".

[2] Partly sponsored by the Hungarian National Scientific-Research Fund (Otka No. 16729).

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A c k n o w l e d g e m e n t s : I wish to express my special thanks to Dr. Bernd Hauser, Head of the Arthropod Department of the Muséum d'Histoire naturelle, Geneva, for giving me the opportunity to study this very rich material collected by him during his 1989 expedition to Madagascar, organized together Dr. Charles Lienhard, Research Officer at the same Department. I also would like to thank Dr. C. Lienhard for the correction of my manuscript.

I am extremely grateful to Dr. Malcolm Luxton for critical reading of the manuscript resulting in many corrections and very useful comments.

LIST OF LOCALITIES

Mad-89/1: MADAGASCAR (Prov. Toamasina [anciennement Tamatave], Sous-préf. Moramanga): Réserve spéciale "Analamazoatra" (anciennement Perinet) près d'Andasibe, forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre cassé et mort, 960 m; 21.XI.1989; leg. B. Hauser (B)[3]

Mad-89/2: MADAGASCAR (Prov. Toamasina [anciennement Tamatave], Sous-préf. Moramanga): Réserve spéciale "Analamazoatra" (anciennement Perinet) près d'Andasibe, forêt primaire, prélèvement de sol dans les angles formés par les contreforts de *Oetece* sp. (Lauraceae), 960 m; 21.XI.1989; leg. B. Hauser (B)[3]

Mad-89/7: MADAGASCAR (Prov. Antsiranana [anciennement Diego-Suarez], Sous-préf. Antsiranana): Parc National "Montagne d'Ambre" (= Ambohitra), près de la "Petite Cascade", forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre, 980 m; 23.XI.1989; leg. B. Hauser (B)[3]

Mad-89/8: Madagascar (Prov. Antsiranana [anciennement Diego-Suarez], Sous-préf. Antsiranana): Parc National "Montagne d'Ambre"(= Ambohitra), au début du chemin vers la "Petite Cascade", après la pépinière, forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre vivant et d'un grand arbre mort, 980 m; 23.XI.1989; leg. B. Hauser (B)[3]

Mad-89/15: MADAGASCAR (Prov. Antsiranana [anciennement Diego-Suarez], Sous-préf. Antsiranana): Parc National "Montagne d'Ambre" (= Ambohitra), route vers la "Grande Cascade", forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre, 800 m; 24.XI.1989; leg. B. Hauser (B)[4]

Mad-89/19: MADAGASCAR (Prov. Antsiranana [anciennement Diego-Suarez], Sous-préf. Antsiranana): Parc National "Montagne d'Ambre" (= Ambohitra), route vers le "Petit Lac", forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre mort, 1090 m; 24.XI.1989; leg. B. Hauser (B)[4]

Mad-89/21: MADAGASCAR (Prov. Antananarivo [anciennement Tananarive], Sous-préf. Ambatolampy): Massif de l'Ankaratra, Station Forestière "Manjakatompo", près du sommet de la montagne Anosiarivo, forêt primaire, prélèvement de sol dans une vieille souche, 1980 m; 26.XI.1989; leg. B. Hauser (B)[4]

Mad-89/22: MADAGASCAR (Prov. Antananarivo [anciennement Tananarive], Sous-préf. Ambatolampy): Massif de l'Ankaratra, Station Forestière "Manjakatompo", près du sommet de la montagne Anosiarivo, forêt primaire, prélèvement de sol dans les racines d'un arbre vivant, 1980 m; 26.XI.1989; leg. B. Hauser (B)[4]

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[3] (B) = extraction par appareil Berlese à Antananarivo (Madagascar).

[4] (B)) extraction par appareil Berlese à Genève.

Mad-89/29: MADAGASCAR (Prov. Antsiranana [anciennement Diego-Suarez], Sous-préf. Andoany [anciennement Hell-Ville]): île **Nosy Be**, Réserve naturelle intégrale "Lokobe", forêt primaire près d'Ampasindava, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre, 14 m; 28.XI.1989; leg. B. Hauser (B)[5]

Mad-89/35: MADAGASCAR (Prov. Antsiranana [anciennement Diego-Suarez], Sous-préf. Andoany (anciennement Hell-Ville): île **Nosy Be**, Réserve naturelle intégrale "Lokobe", forêt primaire près Ampasindava, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre, situés en amont du tronc, 85 m; 30.XI.1989; leg. B. Hauser (B)[3]

Mad-89/36: MADAGASCAR (Prov. Antsiranana [anciennement Diego-Suarez], Sous-préf. Andoany (anciennement Hell-Ville): île **Nosy Be**, Réserve naturelle intégrale "Lokobe", forêt primaire près Ampasindava, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre (identique avec Mad-89/35), situés en aval du tronc, 85 m; 30.XI.1989; leg. B. Hauser (B)[4]

Mad-89/43: MADAGASCAR (Prov. Toliara [anciennement Tulear], Sous-préf. Tôlanaro [anciennement Fort-Dauphin]): à 45 km de Tôlanaro sur la route vers Amboasary, forêt de Didiereaceae, prélèvement de sol, env. 60 m; 4.XII.1989; leg. B. Hauser (B)[4]

Mad-89/49: MADAGASCAR (Prov. Toliara [anciennement Tulear], Sous-préf. Tôlanaro [anciennement Fort-Dauphin]): à 53 km de Tôlanaro sur la route vers Amboasary, forêt de Didiereaceae, prélèvement de sol, 75 m; 5.XII.1989; leg. B. Hauser (B)[4]

Mad-89/52: MADAGASCAR (Prov. Tamatave, Sous-préf. Ambodifototra): île **Nosy Boraha** (anciennement Ile Sainte-Marie), région de "La Crique", forêt de "Kalalao" au sud-est de Lonkintsy, forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre, 80 m; 7.XII.1989; leg. B. Hauser (B)[4]

Mad-89/54: MADAGASCAR (Prov. Tamatave, Sous-préf. Ambodifototra): île **Nosy Boraha** (anciennement Ile Sainte-Marie), région de "La Crique", forêt de "Kalalao" au sud-est de Lonkintsy, forêt primaire, prélèvement de sol dans les angles formés par les contreforts d'un grand arbre, 105 m; 7.XII.1989; leg.B. Hauser (B)[4]

LIST OF IDENTIFIED SPECIES

Ctenacaridae Grandjean, 1954

Beklemishevia cf. *demeteri* Mahunka, 1984

Locality: Mad-89/49: 2 specimens.

Distribution: Ethiopia, Tanzania.

Aphelacaridae Grandjean, 1954

Aphelacarus acarinus (Berlese, 1910)

Locality: Mad-89/49: 5 specimens.

Distribution: Widely distributed species, especially holarctic.

Phthiracaridae Perty, 1841

Phthiracarus insularis Balogh, 1962

Locality: Mad-89/52: 8 specimens.

Distribution: Madagascar (known from the type locality only).

[5] (B) = extraction par appareil Berlese en partie à Antananarivo et en partie à Genvève.

Hypochthoniidae Berlese, 1910

Malacoangelia remigera Berlese, 1913
Locality: Mad-89/29: 8 specimens.
Distribution: A common circumtropical species.

Sphaerochthoniidae Grandjean, 1947

Sphaerochthonius variesetosus sp. n.
Locality: Mad-89/36.

Lohmanniidae Berlese, 1926

Javacarus porosus Hammer, 1960
Locality: Mad-89/29: 3 specimens.
Distribution: See MAHUNKA 1993: 291.

Meristacarus madagascarensis Balogh, 1962
Locality: Mad-89/29: 22 specimens.
Distribution: Madagascar (known from the type locality only).

Paulianacarus rugosus Balogh, 1960
Localities: Mad-89/1: 5 speciemens; Mad-89/52: 1 specimen.
Distribution: Madagascar (known from the type locality only).

Nanhermanniidae Sellnick, 1928

Nanhermannia milloti Balogh, 1960
Locality: Mad-89/22: 6 specimens.
Distribution: Madagascar (known from the type locality only).

Plateremaeidae Trägårdh, 1931

Nooliodes glaber (Balogh, 1962)
Locality: Mad-89/29: 2.
Distribution: Madagascar (known from the type locality only).

Microzetidae Grandjean, 1936

Acaroceras (Malgoceras) helleri Mahunka, 1993
Localities: Mad-89/29: 11 specimens; Mad-89/36: 2 specimens.
Distribution: Madagascar.

Berlesezetes cf. *auxiliaris* (Grandjean, 1936)
Localites: Mad-89/8: 5 specimens; Mad-89/15: 2 specimens; Mad-89/29: 2 specimens; Mad-89/36: 5 specimens.
Distribution: Widely distributed circumtropical (?) species.

Comorozetes corrugatus sp.n.
Localities: Mad-89/35; Mad-89/36, Mad-89/52.

Hymenozetes verticillatus sp.n.
Localities: Mad-89/52; Mad-89/54.

Megazetes nosybe Mahunka, 1993
Locality: Mad-89/29: 5 specimens.
Distribution: Madagascar.

Rhopalozetes madecassus Mahunka, 1993
Locality: Mad-89/29: 4 specimens.
Distribution: Madagascar.

Vermacarus armatus sp. n.
Locality: Mad-89/21.

Eremobelbidae Balogh, 1961
Eremobelba cellulosa sp. n.
Locality: Mad-89/35.

Eremulidae Grandjean, 1956
Caveremulus cordisetus Mahunka, 1983
Localities: Mad-89/29: 5 specimens; Mad-89/35: 2 specimens.
Distribution: See MAHUNKA 1993: 291.

Carabodidae C.L. Koch, 1837
Congocepheus involutus sp.n.
Localities: Mad-89/52; Mad-89/54.

Peloppiidae Balogh, 1943
Trichoppia longiseta Balogh, 1960
Locality: Mad-89/22: 13 specimens.
Distribution: See MAHUNKA 1993: 291.

Otocepheidae Balogh, 1961
Didierotocepheus berndi Mahunka, 1993
Localities: Mad-89/22: 15 specimens; Mad-89/43: 3 specimens; Mad-89/49: 2 specimens.
Distribution: Madagascar.

Pseudotocepheus lienhardi Mahunka, 1993
Localities: Mad-89/1: 8 specimens; Mad-89/2: 2 specimens; Mad-89/43: 5 specimens.
Distribution: Madagascar.

Pseudotocepheus pygmaeus Balogh, 1962
Locality: Mad-89/36: 2 specimens.
Distribution: Madagascar (known from the type locality only).

Pseudotocepheus tolanaro sp.n.
Locality: Mad-89/43.

Oppiidae Grandjean, 1951
Brachioppiella boraha Mahunka, 1993
Locality: Mad-89/52: 3 specimens.
Distribution: Madagascar.

Elaphroppia quadripilosa (Balogh, 1960)
Locality: Mad-89/52: 2 specimens.
Distribution: Madagascar (known from the type locality only).

Goyoppia sexpilosa (Balogh, 1960)
Locality: Mad-89/7: 2 specimens.
Distribution: Madagascar (known from the type locality only).

Lanceoppia (Bicristoppia) kalalao sp. n.
Locality: Mad-89/54.

Lasiobelba lemuria sp.n.
Locality: Mad-89/29.

Leptoppia procera gen. n., sp. n.
Locality: Mad-89/15, Mad-89/19.

Oppiella nova (Oudemans, 1902)
Locality: Mad-89/19: 5 specimens.
Distribution: Cosmopolitan species.

Oxyoppia pustulata sp.n.
Locality: Mad-89/52.

Sphagnoppia alata sp.n.
Locality: Mad-89/52.

Striatoppia luisiae Mahunka, 1993
Locality: Mad-89/52: 2 specimens.
Distribution: Madagascar.

Trematoppia cristipes Balogh, 1962
Localities: Mad-89/15: 1 specimen; Mad-89/29: 8 specimens.
Distribution: Madagascar (known from the type locality only).

Rhynchoribatidae Balogh, 1961
Rhynchoribates genavensium sp.n.
Localites: Mad-89/15, Mad-89/29.

Passalozetidae Grandjean, 1954
Passalozetes (*Passalozetes*) *lienhardi* sp.n.
Localities: Mad-89/43; Mad-89/49.

Passalozetes (*Bipassalozetes*) *hauseri* sp. n.
Locality: Mad-89/43.

Oribatellidae Jacot, 1925
Oribatella madagascarensis sp. n.
Locality: Mad-89/35.

Tegoribatidae Grandjean, 1954
Lemurobates antsiranana gen. n., sp. n.
Localities: Mad-89/7; Mad-89/19; Mad-89/35.

Galumnidae Jacot, 1925
Galumna ankaratra sp.n.
Locality: Mad-89/22.

Galumna engelbrechti sp. n.
Locality: Mad-89/35.

Galumna tuberculata sp.n.
Locality: Mad-89/29.

DESCRIPTIONS AND DISCUSSIONS

Beklemishevia cf. **demeteri** Mahunka, 1984

The material contains two specimens. Unfortunately both are so badly damaged that it was impossible to study all the important features (e.g. ratio of sensillus and the interlamellar setae; setae c_1 and c_2). However, I could ascertain that the tarsus

of leg I has a tiny empodium and certain that seta p_1 is pilose. Consequently the species belongs to the genus *Beklemishevia* Zachvatkin, 1945, species of which are rare in this region. I consider the specimens to be identical with *B. demeteri* Mahunka, 1984 described from Ethiopia and Tanzania (MAHUNKA 1984).

Malacoangelia remigera Berlese, 1913 (Fig. 4)

For a long time the genus *Malacoangelia* Berlese, 1913 was monotypic. Recently, WALLWORK (1960), CHAKRABARTY et al. (1972) and SARKAR & SUBÍAS (1982) described several varieties and new species. Comparing the present material with specimens from Sarawak (Serapi, Sar-87/64, leg. B. Hauser) and with the redescription of GRANDJEAN (Central American specimens) (GRANDJEAN 1935) I found that they differ slightly (setae c_1 [Fig. 4] heart-shaped, relatively short) but these differences are not enough to describe a new taxon. The present specimens have bifurcate rostral setae and the sensillus is unilaterally ciliate (pectinate) (these cilia blunt at tip, setae c_2 bifurcate).

Sphaerochthonius variesetosus sp. n. (Figs 1-3)

Material examined: Holotype: Mad-89/36, 37 paratypes from the same sample. Holotype and 25 paratypes: MHNG[6] and 12 paratypes (1467-PO-93): HNHM[7].

Measurements. - Length of body: 228-272 µm, width of body: 201-227 µm.

Integument: Body, legs and setae covered by thick cerotegument layer. Regular polygonate pattern observable only on the anterior part of notogaster, other parts of the body covered by irregular and mostly granulate cerotegument. All setae, also the sensillus, covered by an irregular but thick layer.

Prodorsum: Sensillus wide, directed posteriorly. Its surface with papillae ordered in rows, like a brush. Rostral, lamellar and interlamellar setae "T-shaped", both pairs of exobothridial setae normal, phylliform, setae *exp* much shorter and smaller than the other ones.

Notogaster: Notogastral setae (Fig. 1) belonging to three types , most of them "T-shaped" (Fig. 2), but setae d_1 and d_2 minute, e_1 and e_2 simple phylliform (setiform with secretion layer).

Ventral regions: Genital plates with a prominent longitudinal crest behind the setae laterally. Their posterior, narrowed part bearing a characteristic, lamelliform expansion constructed from cerotegument (Fig. 3). They cover the anterior part of the anal and adanal plates. Eight pairs of genital setae present, all long, simple. More than ten pairs (10-13 pairs) of anal and five pairs of adanal setae present. The anal setae setiform, the adanal ones "T-shaped".

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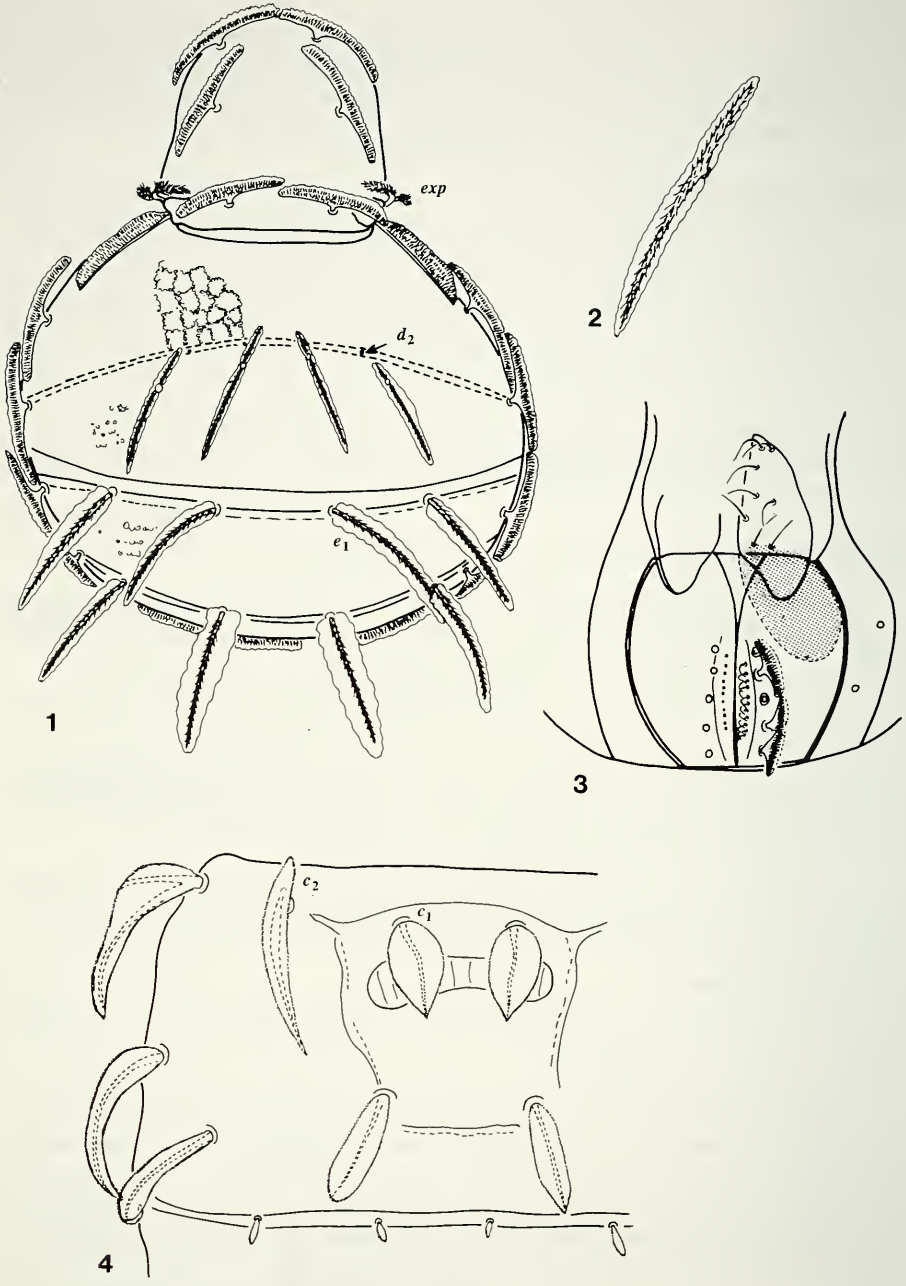
[6] MHNG = deposited in the Muséum d'Histoire naturelle, Genève.

[7] HNHM = deposited in the Hungarian Natural History Museum, Budapest, with identification number of the specimens in the Collection of Arachnida.



FIGS 1-4

Sphaerochthonius variesetosus sp. n. – 1: dorsal aspect, 2: seta *cp*, 3: anogenital region. *Malacoangelia remigera* Berlese, 1913 – 4: anterior part of notogaster.

L e g s : All legs tridactylous, heterodactylous. Solenidium ω_1 of tarsus I strongly arched backwards to the surface of leg, like a snake.

R e m a r k s : The new species is well characterised by the simple, phylliform notogastral setae and the large number of anal setae. This combination of characters is unique in the family. A very large number of anal setae is known only in *S. transversus* Wallwork, 1960 from Ghana. However its notogastral setae are uniformly "T-shaped" and the notogastral setae are phylliform.

D e r i v a t i o n o m i n i s : After the form of the varying "T-shaped" and phylliform setae.

Comorozetes corrugatus sp. n. (Figs 5-10)

M a t e r i a l e x a m i n e d : Holotype: Mad-89/52, 6 paratypes from the same sample; 13 paratypes: Mad-89/35; 2 paratypes: Mad-89/36. Holotype and 13 paratypes: MHNG, 8 paratypes (1468-PO-93): HNHM.

M e a s u r e m e n t s . - Length of body (without lamellae): 397-446 µm, width of body: 359-370 µm.

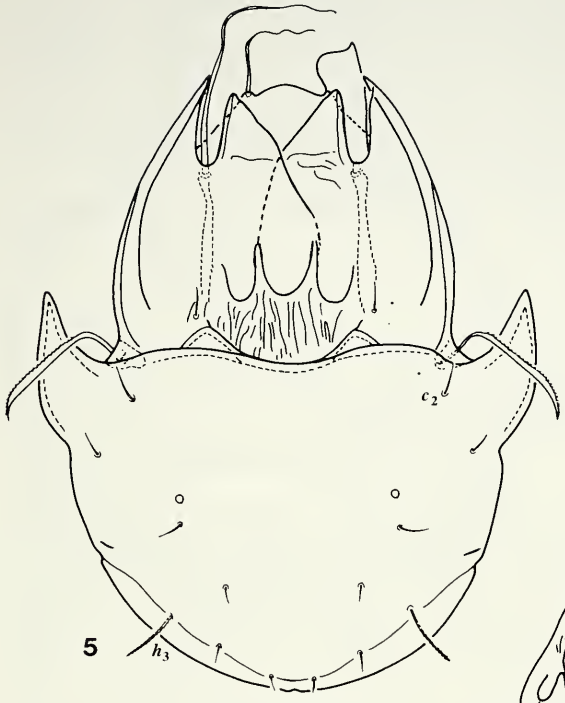
P r o d o r s u m : Rostrum without apex, broadly rounded, with two tubercles laterally from which arise the flagellate rostral setae. Lamellae very wide, their median parts overlapping, each obscurely connected with two processes in the interlamellar region (Fig. 5). In this region some longitudinal wrinkles also observable basally. Lamellar cusps with a deep incision medially, outer apex sharply pointed, inner one blunt. Interlamellar setae short, simple, arising medially on the lamellar surface. Sensillus thick, setiform, directed outwards and backwards, its outer surface barbed, barbs ordered in one row. Tutorium very large, dilated distally, reaching out from the lamellae. Its surface distinctly rugose, with transversal ridges anteriorly and longitudinal ones medially and basally.

N o t o g a s t e r : Surface of notogaster smooth, but two hollows laterally connected by a shallow furrow (Fig. 5). Dorsosejugal suture complete, slightly concave medially. Pteromorphae simple, with a sharply pointed, small cusp laterally. It is characteristically framed (Fig. 10), its margins parallel. Nine pairs of notogastral setae of different lengths, h_3 the longest of all and finely roughened, all others simple, smooth, c_2 slightly longer than the rest.

L a t e r a l r e g i o n o f t h e p o d o s o m a : Pedotecta 1 and 2-3 very large, both well striated. Discidium also large but without any sculpture. Above the acetabula of legs II-IV a large granulate area present (Fig. 7).

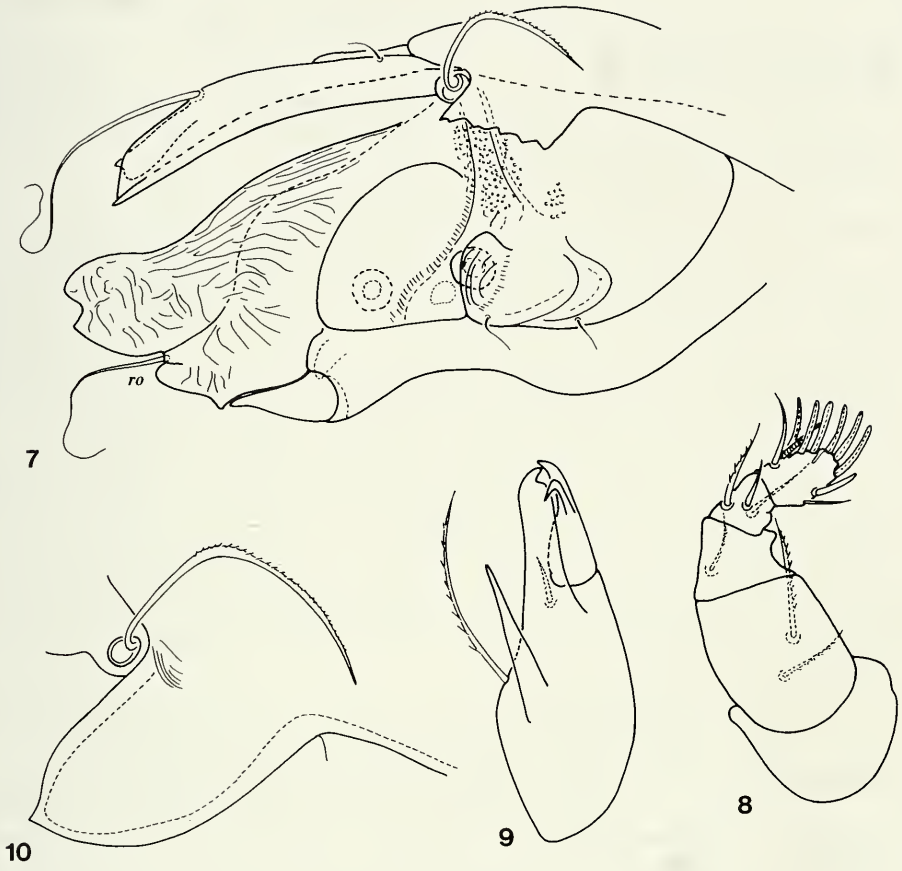
G n a t h o s o m a : Digitus fixus of chelicera (Fig. 9) with one tooth, digitus mobilis smooth, but a falciform structure visible on it. Tegula normal. Seta *cha* setiform, long; seta *chb* short, spiniform. Setal formula of palp: 2 - 1 - 3 - 9+1 (Fig. 8), only two setae among them setiform, all others digitiform, appearing to be eupathidia.

V e n t r a l r e g i o n s : Coxisternal surface smooth, epimeral borders and apodemes weakly developed (Fig. 6). Among the epimeral setae *1a*, *1c* simple, all others finely ciliate and longer than the preceding ones. Setae *2a* and *3a* arising very near to each other. Anterior pair of genital setae long and distinctly barbed, all other



FIGS 5-6

Comorozetes corrugatus sp. n. – 5: dorsal aspect, 6: ventral aspect.



FIGS 7-10

Comorozetes corrugatus sp. n. – 7: podosoma in lateral aspect, 8: palp, 9:chelicera, 10: pteromorpha in lateral aspect.

setae in the anogenital region minute. Anogenital setal formula: 6 - 1 - 2 - 3. A characteristic, deep, but small foveola, like a foramen present between the anal and genital apertures.

R e m a r k s : On the basis of some characters (habitus, form of lamellae, form of tutorium, shape of sensillus, one pair of foramina in the anogenital region, etc.) the new species is well assignable to the recently described genus *Comorozetes* Mahunka, 1994. However it differs from the type species of this genus by the 2 pairs of anal setae (four pairs in the type-species of *Comorozetes*). This feature is not considered to be of generic significance.

Derivatio nominis: After the sculpture of the interlamellar surface.

Hymenozetes verticillatus sp. n. (Figs 11-13)

Material examined: Holotype: Mad-89/52, 2 paratypes from the same sample; 3 paratypes: Mad-89/54. Holotype and 3 paratypes: MHNG and 2 paratypes (1469-PO-93): HNHM.

Measurements. - Length of body: 304-327 µm, width of body (without lamellae and pteromorphae): 239-272 µm.

Prodorsum: Rostral apex observable only in lateral aspect, beak-shaped. In dorsal aspect a broad straight margin visible and two long tubercles, on which the rostral setae arise, located very far from each other. Lamellae very wide, the two parts overlapping, with a sharply pointed outer and a flattened median apex. Lamellae connected basally by a thick, concave band, interlamellar setae arising on its underside. Rostral, lamellar and interlamellar setae long, with a curiously flagellate distal part. Sensillus directed outwards, its distal end slightly dilated, unilaterally ciliate.

Notogaster: Dorsosejugal suture nearly straight medially, with deep hollows before the pteromorphae. Pteromorpha long, linguliform, with 1 or 2 small teeth distally. Nine pairs of notogastral setae present; in the middle of notogaster is a conspicous protuberance surrounded by five pairs of notogastral setae (Fig. 11). These setae bear long, spiniform "cilia", like a christmas-tree. The two pairs of setae in humeral position (c_2, *la*) much smaller than the others - excepting setae in posteromarginal position (*p*).

Lateral region of podosoma: Tutorium very large (Fig. 13), with a rounded apex. Its surface ornamented by some wrinkles (anteriorly) and (in a small basal region) by polygonal design. Pedotecta 1 and the discidium very large.

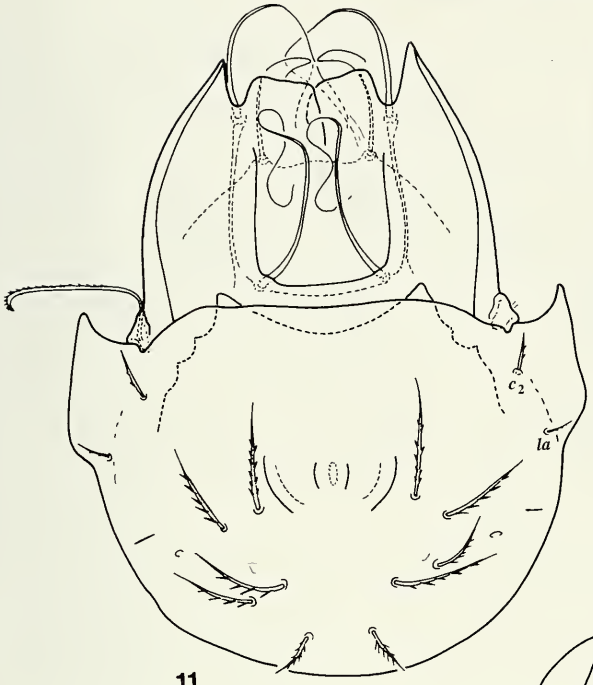
Ventral regions: Coxisternal region lacking characteristic sculpture. Apodemes and epimeral borders – excepting a broad band in front of the genital aperture – weakly developed (Fig. 12). Among the epimeral setae *1a* arise very near to each other, setae *1b* also very near to *1c*. Setae *3c* conspicuously strong, setae *4c* the shortest of all epimeral setae. Surface of the genital plates smooth, anal plates with minute, irregular foveolae, the same structure observable between the genital and anal aperture and behind the latter. The anterior pair of genital setae longer and stronger than the others and conspicuously ciliate. All three pairs of adanal setae arising in paraanal position, all directed inwards.

Remarks: Both heretofore known Hymenozetes Balogh, 1962 species were described from Madagascar. This new species without doubt belongs to this genus. On the basis of the form of the notogastral setae (fine and short in *H. mirabilis* Balogh, 1962, longer and stronger, but not spiniform, in *H. quadricornutus* Mahunka, 1993) these three species are readily distinguished from each other.

Derivatio nominis: After the arrangement of the notogastral setae.

Vermacarus armatus sp. n. (Figs 14-16)

Material examined: Holotype: Mad-89/21, 7 paratypes from the same sample. Holotype and 4 paratypes: MHNG and 3 paratypes (1470-PO-93): HNHM.



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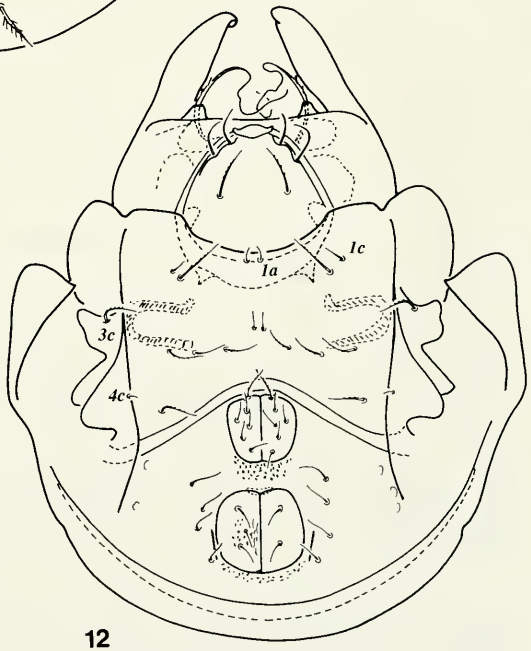

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FIGS 11-12

Hymenozetes verticillatus sp. n. – 11: dorsal aspect, 12: ventral aspect.

FIG. 13

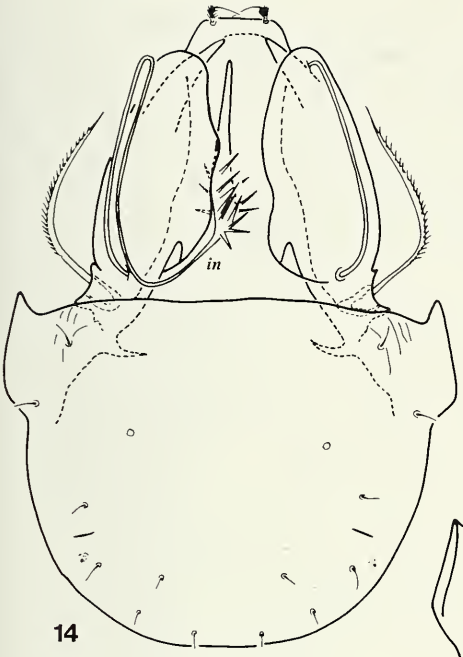
Hymenozetes verticillatus sp. n. – 13: podosoma in lateral aspect.

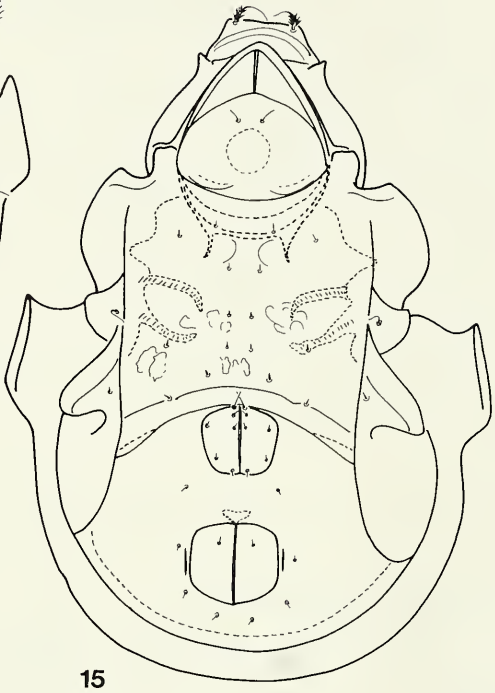
M e a s u r e m e n t s . - Length of body: 255-262 µm, width of body: 174-185 µm.

P r o d o r s u m : Rostrum wide, its beak-shaped apex visible only in lateral view (Fig. 16), its dorsal aspect straight anteriorly. Rostral setae arising marginally, ciliate basally and smooth distally. Lamellae wide, without lamellar apices, rounded anteriorly (Fig. 14). I was unable to find the lamellar setae. Interlamellar setae (*in*) inserted on the lamellar surface, very long, bent completely backwards and then forwards, with a characteristically widened very large, spinose and fusiform distal end. Sensillus directed forwards, well spinose, mostly on its outer margin. Tutorium with two apices, surface between them concave. It projects only slightly from the prodorsal surface.

N o t o g a s t e r : The notogaster very wide, its posterior margin seems to be straight in dorsal aspect (Fig. 14). Dorsosejugal suture complete. A large hollow observable in the humeral region, this part pustulate (Fig. 16). Pteromorpha comparatively small, with a sharply pointed anterolateral apex. All nine pairs of notogastral setae short and simple.

V e n t r a l r e g i o n s : Among the apodemes only $ap._2$ and the sejugal apodeme observable (Fig. 15). A wide transversal band running in front of the genital





FIGS 14-15

Vermacarus armatus sp. n. – 14: dorsal aspect, 15: ventral aspect.

aperture. All epimeral setae minute. Excepting the anterior genital setae, all setae in the anogenital region also minute. Anogenital setal formula: 3 - 1 - 2 - 3.

L e g s : Femur II, trochanters and femora of legs III and IV, and tibiae have a blade- like formation basally. The latter bearing two dilated, ciliate, strong setae (*v'* and *v"*).

R e m a r k s : On the basis of the habitus, the short notogastral setae, the direction of the sensillus and, primarily, the curiously modified interlamellar setae the new species resembles the genus *Vermacarus* Balogh & Mahunka, 1980 described from Cuba.

D e r i v a t i o n o m i n i s : After the form of the mace-like interlamellar setae.

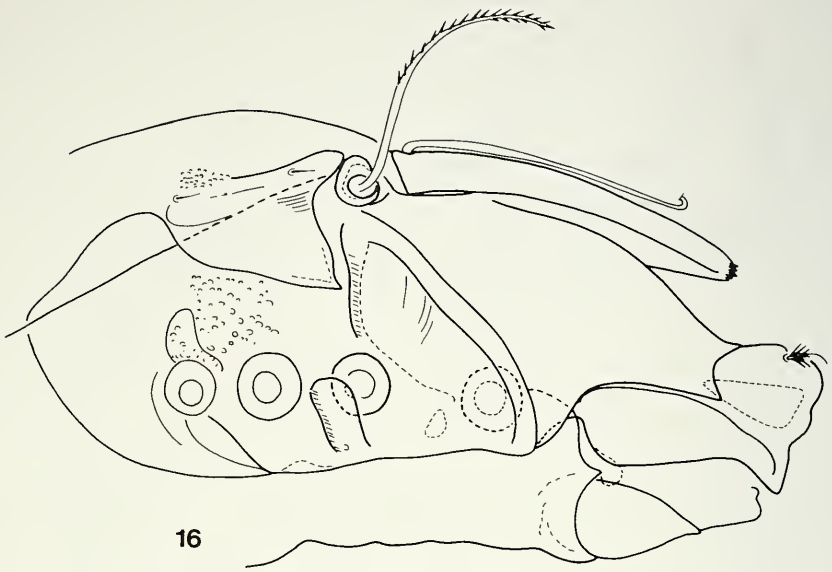


FIG. 16

Vermacarus armatus sp. n. – 16: podosoma in lateral aspect.

Eremobelba cellulosa sp. n. (Figs 17-21)

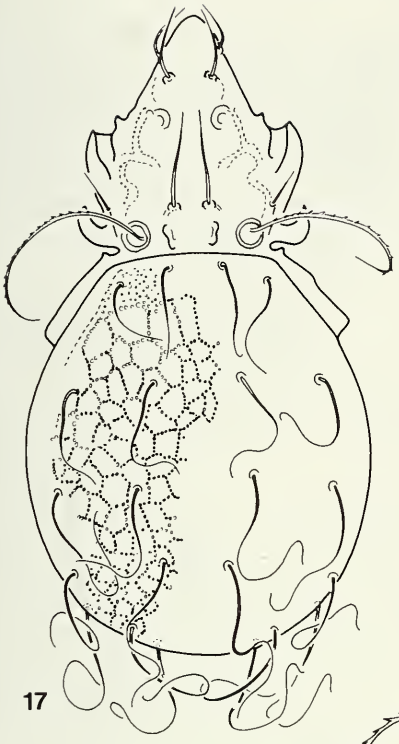
Material examined: Holotype: Mad-89/35, 32 paratypes from the same sample. Holotypes and 20 paratypes: MHNG and 12 paratypes (1471-PO-93): HNHM.

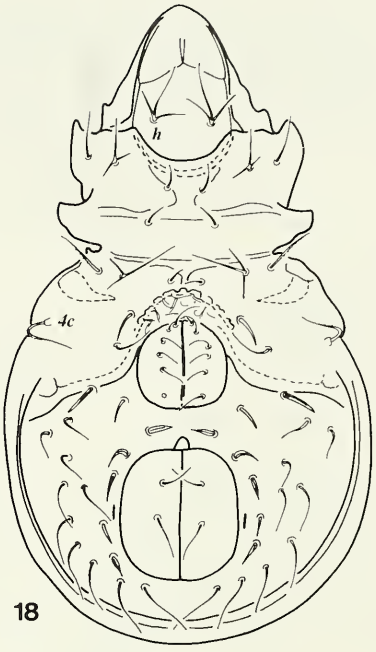
Measurements. - Length of body: 386-463 µm, width of body: 223-267 µm.

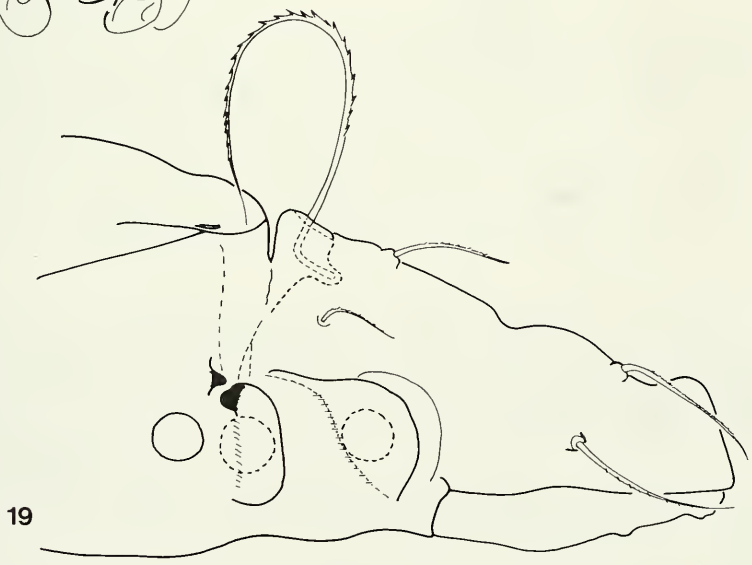
Prodorsum: Rostrum conical. Prodorsal surface with some tubercles and crests (Fig. 17), rostral, lamellar and interlamellar setae also arising on such tubercles. Rostral setae located laterally, these and the lamellar setae slightly dilated, but both pairs shorter than the setiform interlamellar setae. Sensillus typical for the genus, arched, with many large spicules on its outer margin. Exobothridial setae simple.

Notogaster: Notogastral surface covered by a characteristic, granulate cerotegument. The granules placed irregularly in a narrow anterior transversal band of the notogaster, behind them the whole surface ornamented by the granules forming a polygonate pattern whose cells are comparatively small. All eleven pairs of notogastral setae setiform, with a long, flagellate, filiform distal part (Fig. 17).

Lateral region of podosoma: A pair of sharp tubercles opposing the lateral tubercles of pedotecta 2-3 (Fig. 19). Pedotecta 1 and 2-3 large.

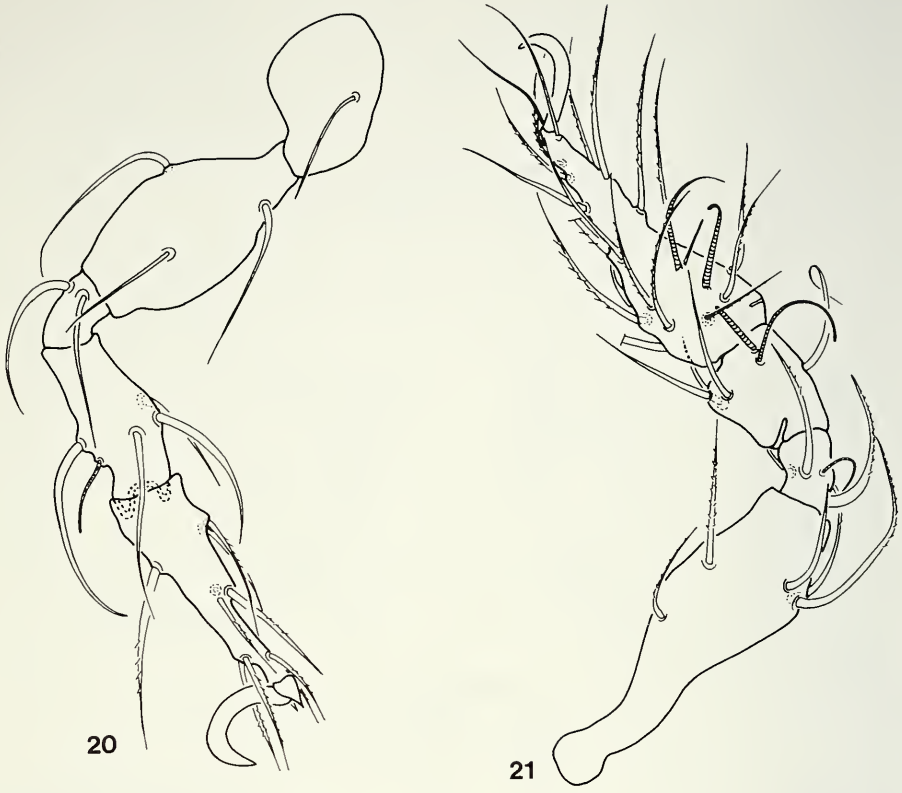






FIGS 17-19

Eremobelba cellulosa sp. n. – 17: dorsal aspect, 18: ventral aspect, 19: podosoma in lateral aspect.



FIGS 20-21

Eremobelba cellulosa sp. n. – 20: leg IV, 21: leg I.

C o x i s t e r n a l r e g i o n : Epimeral setal formula: 3 - 1 - 3 - 3. Among the setae *1b*, *3b*, and the *h* seta on mentum, branched basally, star-shaped, *4a* sword-shaped. Seta *4c* arising on a tubercle. In front of the genital aperture, on the epimeral surface a large area present with irregular crests, laths and spots medially (Fig. 18).

A n o g e n i t a l r e g i o n : Normal (in this genus characteristic neotrichy present). Among the setae, 7 pairs in aggenital and adanal position slightly broadened or sword-shaped. The other simple, setiform. Genital setae ordered in one longitudinal arch.

L e g s : Their form and chaetotaxy are typical for the genus. Leg setal formulae are:

I: 1 - 5 - 3+1 - 4+2 - 20+2 - 1 (Fig. 21)
IV: 1 - 3 - 2 - 4+1 - 12 - 1 (Fig. 20).

R e m a r k s : The new species is well characterised by the comparatively small size of the cells forming the polygonate sculpture composed of granules and by the flagellate notogastral setae. The other *Eremobelba* Berlese, 1908 species having polygonate sculpture have polygons of different size, firstly medially, or these polygons are much larger. On this basis the new species is readily distinguished from all congeners.

D e r i v a t i o n o m i n i s : After the sculpture of the notogaster.

Congocepheus involutus sp.n. (Figs 22-24)

M a t e r i a l e x a m i n e d : Holotype: Mad-89/52; paratype: Mad-89/54. Holotype: MHNG and paratype (1472-PO-93): HNHM.

M e a s u r e m e n t s . - Length of body: 299-310 µm, width of body: 206-213 µm.

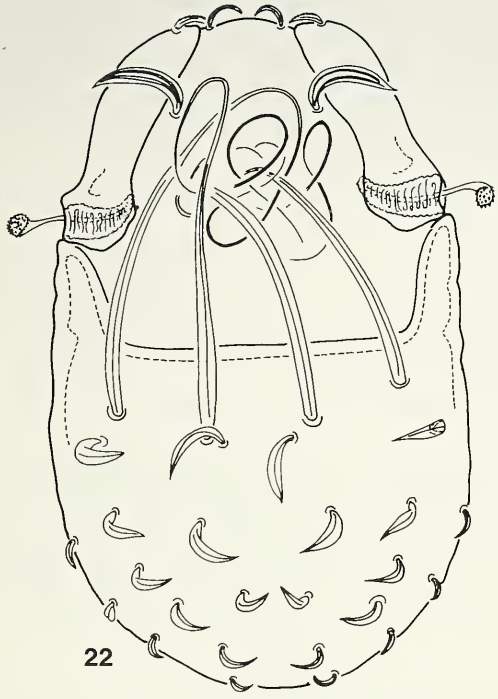
P r o d o r s u m : Rostrum wide, rounded. Rostral and lamellar setae phylliform, the first with serrated margins. Interlamellar setae arising on the interlamellar surface, large phylliform, directed outwards. Bothridium conspicuously long, arched forwards. Sensillus comparatively short, dilated, with rounded and spiculate distal end, nearly spoon-shaped (Fig. 22) in dorsal aspect. Basal part of the interlamellar region excavated, this region extends over the anterior part of the notogaster, thus, a very large hollow is formed.

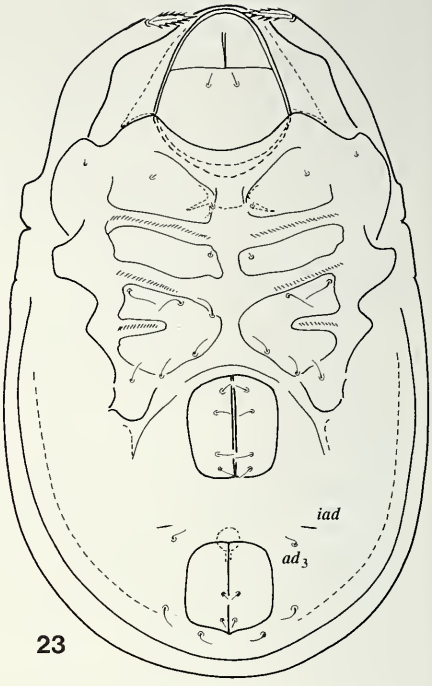
N o t o g a s t e r : In spite of the sejugal hollow the humeral part seems to be a pair of long processes. Fourteen pairs of notogastral setae present, two pairs of them very long, curved, coiled up to fill the sejugal and prodorsal hollows (Fig.24). Two setae of the paratype are not coiled up, but bent over the rostrum lying on the ventral part and reaching to the genital opening. The rest of the notogastral setae short, phylliform and - excepting the four pairs in posteromarginal position which are shorter - no essential difference between them. Lyrifissures visible only in lateral view.

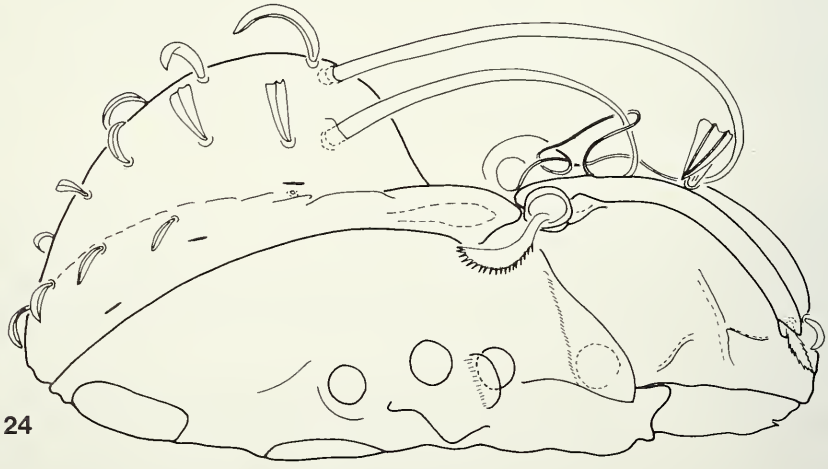
V e n t r a l r e g i o n s : Coxisternal region with robustly sclerotised structure, epimeral borders very wide. All epimeral setae clearly visible, all fine, setiform or minute. Epimeral setal formula: 3 - 1 - 3 - 3. Genital plates comparatively large, slightly larger than the anal ones (Fig. 23). Four (in the paratype 4-5) pairs of genital, 2 pairs of anal, and three pairs of adanal setae present. Aggenital setae absent. Lyrifissure *iad* conspicuous, located in front of the anal aperture, in apoanal position. Setae ad_3 in preanal position.

R e m a r k s : On the basis of the excavated prodorsum and notogaster and the two pairs of notogastral setae directed anteriorly the new species is readily associated with the genus *Congocepheus* Balogh, 1958. It is easily distinguishable from all known *Congocepheus* species by the unique length and shape of these notogastral setae.

D e r i v a t i o n o m i n i s : After the inward coiled (= involuted) anterior notogastral setae.







FIGS 22-24

Congocepheus involutus sp. n. – 22: dorsal aspect, 23: ventral aspect, 24: lateral aspect.

Pseudotocepheus tolanaro sp. n. (Figs 25-27)

Material examined: Holotype: Mad-89/43, 2 paratypes from the same sample. Holotype and 1 paratype: MHNG and 1 paratype (1473-PO-93): HNHM.

Measurements: Length of body: 736 µm (male), 931-1015 µm (females), width of body: 292 µm (male), 444-515 µm (female).

Prodorsum: Rostrum rounded. Form of lamellae typical for the genus: comparatively short and narrow, slightly bent inwards to the basis of the lamellar setae. Lamellar apex absent. Tutorium short, straight. Three weak median prodorsal condyles present (one pair and an unpaired medial one), lateral condyles also weak. In the interbothridial region a series of paired striated alveoli. Surface foveolate along the lamellae and pustulate in the exobothridial region, generally finely punctate. Among the prodorsal setae one pair (*ro*) setiform, three pairs needle-shaped. Interlamellar setae the longest of all, lamellar setae shorter than rostral ones (Fig. 27). Exobothridial setae the shortest, but not thinner than the others. Sensillus directed laterally, with rounded head.

Notogaster: No condyles on the anterior margin of the notogaster, but the shoulder slightly protruding anteriorly. Surface finely punctate, some weak foveolae also present laterally. Ten pairs erect, needle-shaped, finely and sparsely ciliate notogastral setae present, the anterior setae (c_2, *la*, *lm*) shorter than the posterior ones, but the difference not greater than one-third (Fig. 25).

Ventral regions: Apodemes well developed. All epimeral setae simple, setae *1b* and *3b* characteristically longer than *1c* or *3c*. Setae *1c* arising conspicuously nearer to the acetabulum of leg II, than to leg I. Anogenital setal formula: 3 - 1 - 3 - 3. Genital, aggenital and anal setae setiform, adanal ones needle-shaped. Lyrifissures *iad* in preanal and apoanal position (Fig. 26).

Legs: Type of the ultimate setae: L - L - L - L. Tarsus of leg II-IV with dorsal teeth.

Remarks: There is no doubt that the new species belongs to the genus *Pseudotocepheus* Balogh, 1960. It differs from the other species by the position of seta *1c* and by the uniformly needle-shaped notogastral setae.

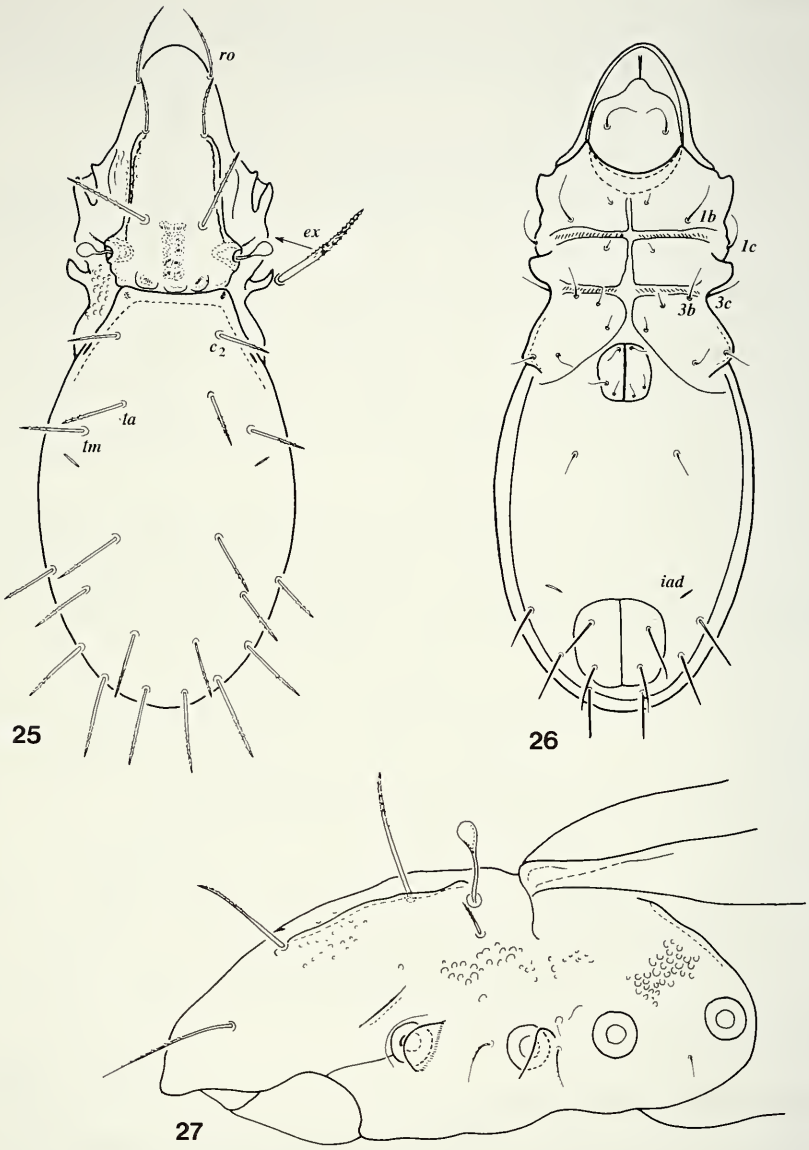
Derivatio nominis: After Tolanaro City (formerly Fort Dauphin) in Northern Madagascar.

Lanceoppia (Bicristoppia) kalalao sp. n. (Figs 28-33)

Material examined: Holotype: Mad-89/54, 1 paratype from the same sample. Holotype: MHNG and paratype (1474-PO-93): HNHM.

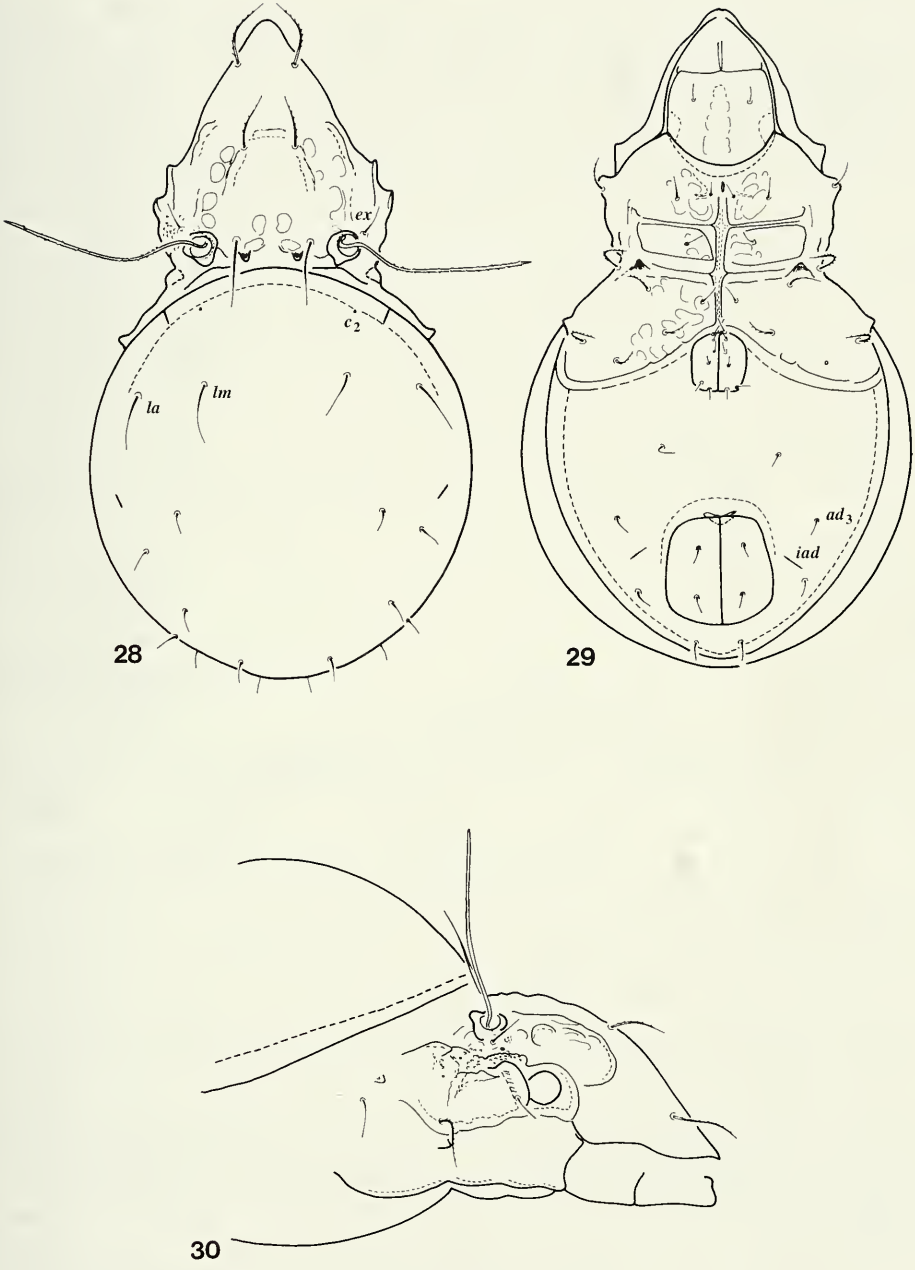
Measurements. - Length of body: 285-327 µm, width of body: 184-202 µm.

Prodorsum: Rostrum conical. Lamellar and translamellar lines conspicuous, in the holotype they seem to be true crests (Fig. 28), in the paratype the transline is much weaker. One pair of tubercles and two pairs of spots present in the interbothridial region, characteristic for the subgenus. Some other crests and spots or



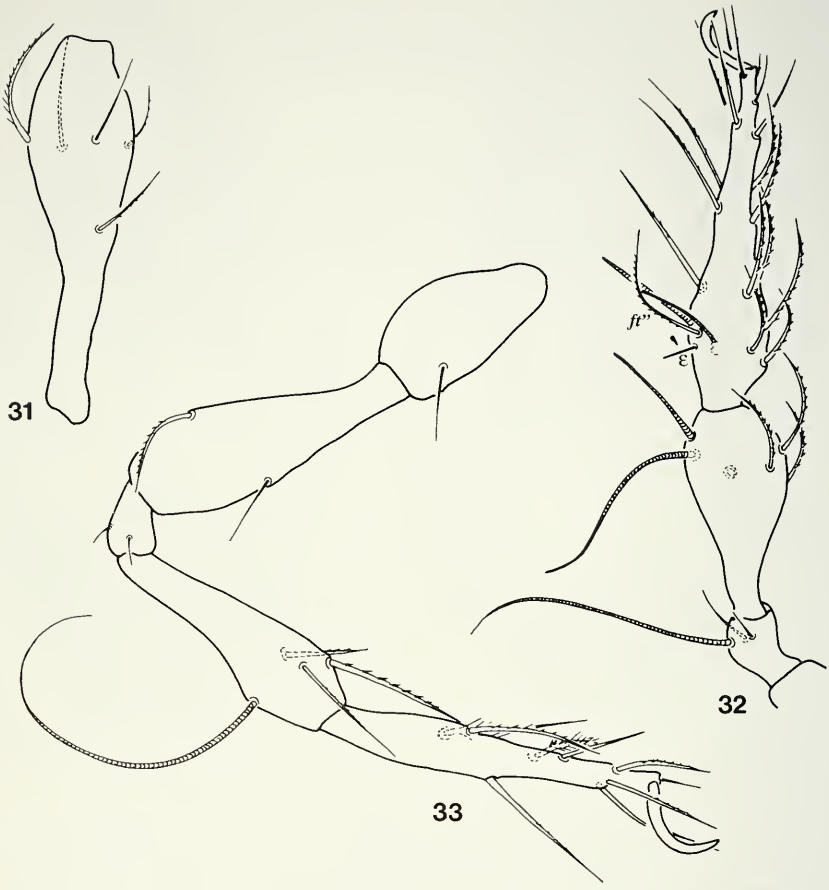
FIGS 25-27

Pseudotocepheus tolanaro sp. n. – 25: dorsal aspect, 26: ventral aspect, 27: podosoma in lateral aspect.



FIGS 28-30

Lanceoppia (Bicristoppia) kalalao sp. n. – 28: dorsal aspect, 29: ventral aspect, 30: podosoma in lateral aspect.



FIGS 31-33

Lanceoppia (*Bicristoppia*) *kalalao* sp. n. – 31: femur of leg I, 32: genu, tibia and tarsus of leg I, 33: leg IV.

alveoli also observable on the prodorsal surface. Rostral setae arising on the prodorsal surface, but comparatively far from each other. Ratio among the prodorsal setae: *in* > *ro* > *le* > *ex*. Setae *ro* and *le* well ciliate, the other two pairs glabrous. Bothridium with a basal knob. Sensillus very long, directed clearly outwards, setiform, with some minute spicules.

N o t o g a s t e r : Nine pairs of short notogastral setae and the alveoli of the vestigial setae c_2 present. Setae *la* and *lm* inserted nearly on a transversal line, these two pairs approximately twice as long as the other notogastral setae. All fine, setiform.

Lateral region of podosoma: Some crests and a well pustulate field above the acetabula in this region (Fig. 30).

Coxisternal region: Inner margin of the epimeral fields like a tectum. They do not meet medially, between the epimeral fields a sternal fossa present. Other, transversal, epimeral borders well developed, mostly wide, on the sejugal ones a pair of sharp, triangular tubercles observable laterally. Epimeral setae short, mostly well ciliate. Setae *1c* arising on pedotecta 1.

Anogenital region: Genital plates narrow, with 6 pairs of simple genital setae. Anal plates much larger than the genital ones, all setae in this region short. Lyrifissures *iad* in the characteristic inverse apoanal position (Fig. 29).

Legs: All joints of the legs slender, narrow (Figs 31-33). ϵ of tarsus I located posteriorly, behind seta *ft*" and ω_2 (Fig. 32). Tarsus of leg IV bearing two plumose setae (Fig. 33).

Remarks: On the basis of the interbothridial tubercles the new species belongs to the subgenus *Bicristoppia* Subías, 1989. From the heretofore known species the new one is distinguished by the form of the sensillus and the ratio of the notogastral setae.

Derivatio nominis: After the Kalalao primary forest, the name of the collecting site.

Lasiobelba lemuria sp. n. (Figs 34-40)

Material examined: Holotype: Mad-89/29, 8 paratypes from the same sample. Holotype and 5 paratypes: MHNG and 3 paratypes (1475-PO-1993): HNHM.

Measurements. - Length of body: 478-522 µm, width of body: 277-315µm. Male specimens slightly smaller than the females.

Prodorsum: Rostrum conical in dorsal, beak-shaped in lateral, aspect. Lamellae absent, but lamellar setae inserted on small knobs. Interbothridial region well sclerotised, bothridia connected with each other by a darker band, the interlamellar setae arising on anterior margin of the band. Rostral, lamellar, interlamellar and exobothridial setae strong, well ciliate, their ratio: *le* >*in* >*ro* = *ex*. Distances between setae *ro* and between setae *in* subequal; distance between setae *le* only slightly greater (Fig. 34). Sensillus long, slightly broadened medially, cylindrical; well spiculate basally with some longer cilia distally (Fig. 36). Lateral part of prodorsum partly pustulate, this sculpture spreading over the sejugal region laterally.

Notogaster: Semicircular in cross-section. A characteristic longitudinal crest observable on its anteromedian margin. Ten pairs of notogastral setae present, setae c_2 very short and fine, all the others much longer and thicker, but setae *p* in posteromarginal position also shorter than the others.

Lateral region of podosoma: Pedotecta 1 small, pedotecta 2-3 absent, discidium well observable as a triangular apex, but discidial carina absent (Fig. 36).

Coxisternal region: Mental tectum separated from the anterior margin of the coxisternal region. Anterior border of coxisternal region (*bo. 1*) arched inwards, epimeral shields not always touching medially. *bo. 5* strongly arched posteriorly, reaching behind the genital aperture (Fig 35). Epimeral setae simple, but very great differences exist among them. Characteristic feature: setae *1c* short, much shorter than setae *1b* and originating far from pedotecta 1. Setae *1a*, *2a*, and *3a* short and nearly smooth, *3c* and *4c* long and well pilose.

Anogenital region: Genital and anal apertures quite different, the former only half as wide as the latter. Anogenital setal formula: 5 - 1 - 2 - 3. Anal and adanal setae conspicuously long and ciliate. Lyrifissures *iad* in paraanal position.

Legs: All legs long, narrow, slender. Tarsi II-IV with conspicous setae *(u)*, differentiated as strong but short spines, therefore the setal formulae are:

I: 1 - 5 - 2+1 - 4+2 - 20+2 - 1 (Figs 37-38)

IV: 1 - 2 - 2 - 3+1 - 12 - 1 (Figs 39-40).

Remarks: The new species is well characterised by the presence of setae c_2 and the characteristic sculpture of the interbothridial region and on the anterior margin of the notogaster. The type species and most of the heretofore known *Lasiobelba* Aoki, 1959 species have only 9 pairs of notogastral setae, and setae c_2 are represented only by their alveoli. Among the *Lasiobelba* species *L. heterosa* (Wallwork, 1964) has 10 pairs of notogastral setae and a sculptured anterior margin of the notogaster. However, the sensillus of this species is setiform and the notogaster has an excavation. On this basis the new species is readily distinguished from all congeners.

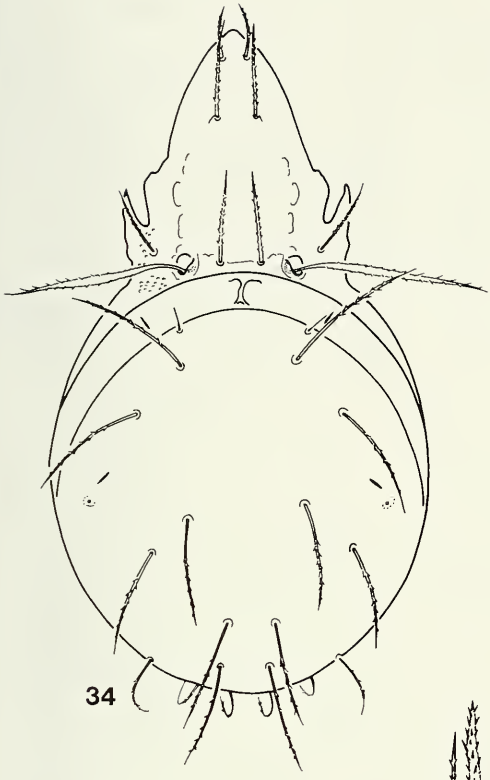
Derivatio nominis: After the Lemurs, a group of Primates endemic to Madagascar.

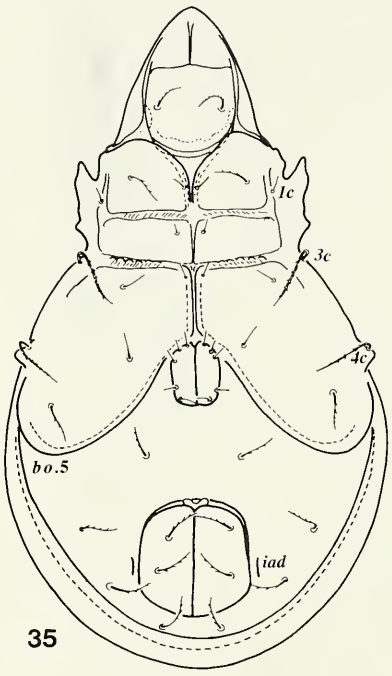
Leptoppia gen. n.

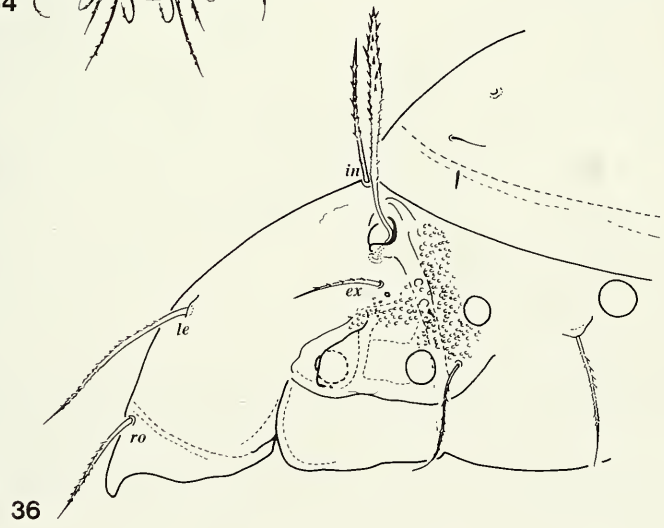
Diagnosis: Family *Oppiidae*. Body elongated and flat, notogaster not convex. Rostrum divided by two incisions, rostral setae arising on the dorsal surface, far from each other. Lamellar costula absent, but some pustules and a weak lamellar line present. A pair of characteristic vertical interbothridial laths and two pairs of spots present. Sensillus fusiform, pectinate. Ten pairs of notogastral setae present, lyrifissure *ia* in transversal position, far from the dorsosejugal margin. Coxisternal region strongly elongated posteriorly, the acetabula of leg IV very far from leg III. Epimeral border 4 arched far behind the genital aperture. Discidium absent. One pair of smaller, and one pair of stronger tubercles present on the sejugal borders. Anogenital setal formula: 5 - 1 - 2 - 3. Setae ad_3 in preanal, lyrifissure *iad* in inverse apoanal position. All legs with normal "oppioid" characters.

Type species: *Leptoppia procera* sp. n.

Remarks: Some of the main characters of this taxon resemble those known in the genera *Brachioppia* Hammer, 1961 and/or *Gittella* Hammer, 1961. However, these genera are characterised by a rounded rostral apex, and by the position of the acetabula. The new genus differs from them by the position of the lyrifissures *ia* and the strong lateral apophysis in the sejugal region.

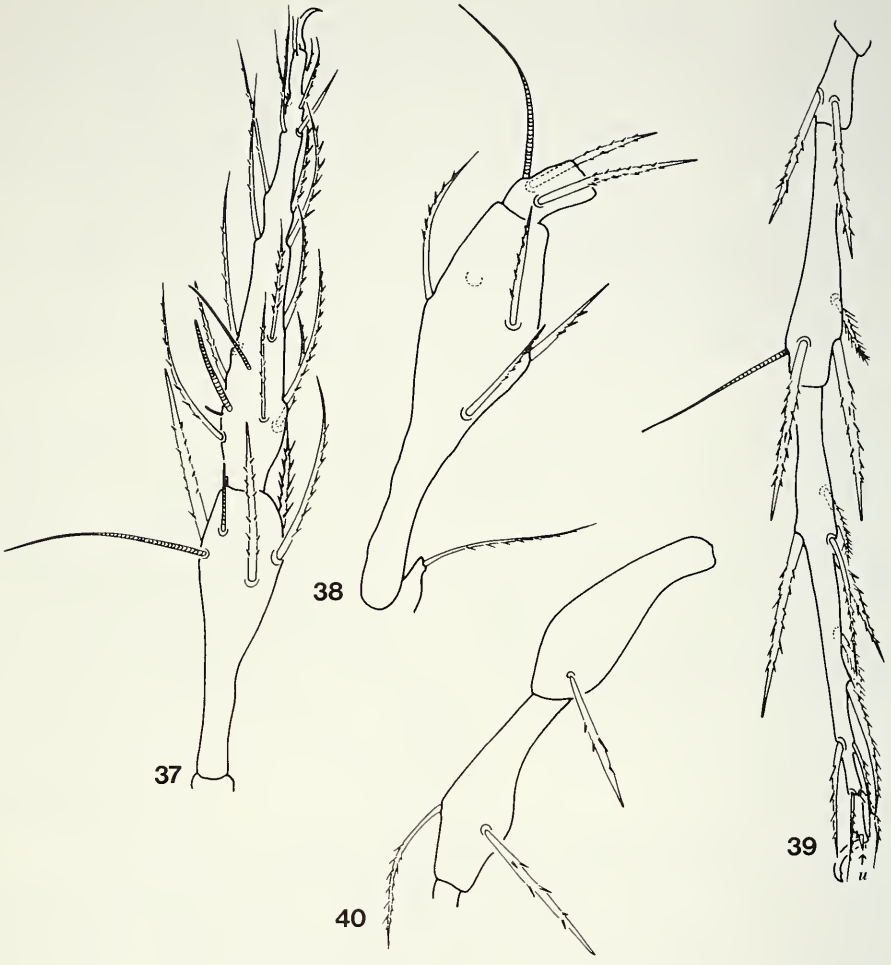






FIGS 34-36

Lasiobelba lemuria sp. n. – 34: dorsal aspect, 35: ventral aspect, 36: podosoma in lateral aspect.



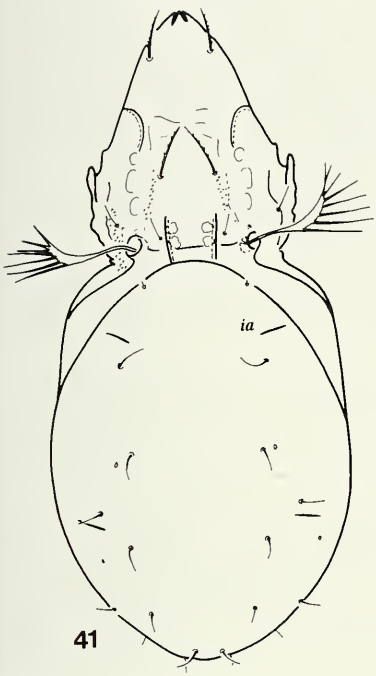
FIGS 37-40

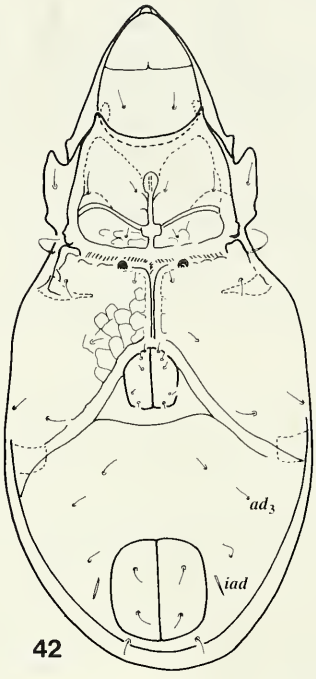
Lasiobelba lemuria sp. n. – 37: tibia and tarsus of leg I, 38: femur and genu of leg I, 39: genu, tibia and tarsus of leg IV, 40: trochanter and femur of leg IV.

D e r i v a t i o n o m i n i s : from the Greek word λεπτοζ (leptos) = elongated, narrow, slender.

Leptoppia procera sp. n. (Figs 41-43)

M a t e r i a l e x a m i n e d : Holotype: Mad-89/15, 18 paratypes from the same sample; 1 paratype: Mad-89/19. Holotype and 12 paratypes: MHNG and 7 paratypes (1476-PO-93): HNHM.





FIGS 41-43

Leptoppia procera gen. n., sp. n. – 41: dorsal aspect, 42: ventral aspect, 43: podosoma in lateral aspect.

Measurements. - Length of body: 250-278 µm, width of body: 111-128 µm.

Prodorsum: The median apex of the incised rostrum the same size as the lateral apices. Prodorsal surface ornamented by various sculptures: a pair of costuliform laths arched laterally, median part with some weak rugae in front of the insertion of the lamellar setae, some pustules ordered in longitudinal rows in the lamellar position, some light spots in exolamellar and two pairs in interbothridial position and a pair of strong longitudinal laths also in interbothridial position (Fig. 41). Ratio among the prodorsal setae *ro* >*le* >*in* = *ex*. Sensillus asymmetrically dilated, pectinate, with 7-8 long branches.

Notogaster: Ten pairs of short and simple notogastral setae present. Among them setae c_2 minute, setae c_2, *la*, *lm* and *lp* arising nearly in longitudinal rows.

Lateral region of the podosoma: Pedotecta 1 large, pedotecta 2-3 very small, but a well-developed, anteriorly protruding, large protuberance located behind the acetabulum of leg II (Fig. 43). Sejugal region and a part of the exobothridial region sparsely pustulate.

Ventral regions: Apodemes and the epimeral borders well developed, but sternal apodeme and border not reaching the mentum, ending in a clavate structure. Sejugal borders especially wide, with two pairs of tubercles directed anteriorly. Epimeral border 4 directed posteriorly, well arched, following the displacement of the acetabulum of leg IV behind the genital aperture (Fig. 42). Anogenital setal formula: 5 - 1 - 2 - 3. All setae in this region very short. Lyrifissures *iad* in inverse apoanal position.

Legs: The tibia and tarsus of leg IV bearing one strong spiniform seta.

Remarks: See the remarks after the generic diagnosis.

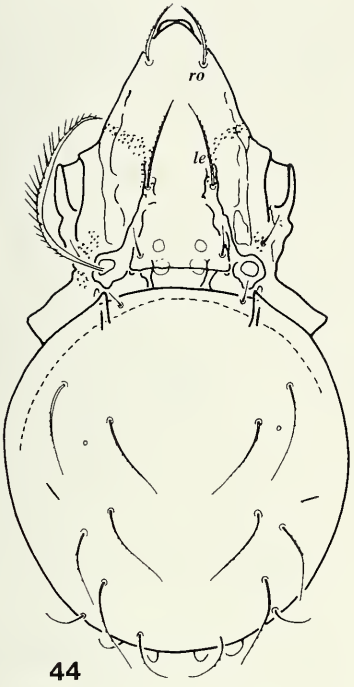
Derivatio nominis: After the elongated form of the notogaster.

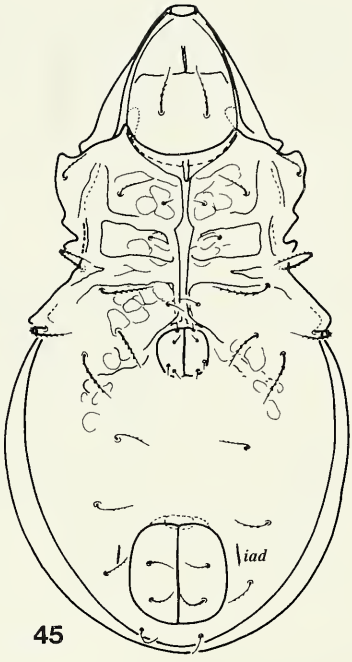
Oxyoppia pustulata sp. n. (Figs 44-48)

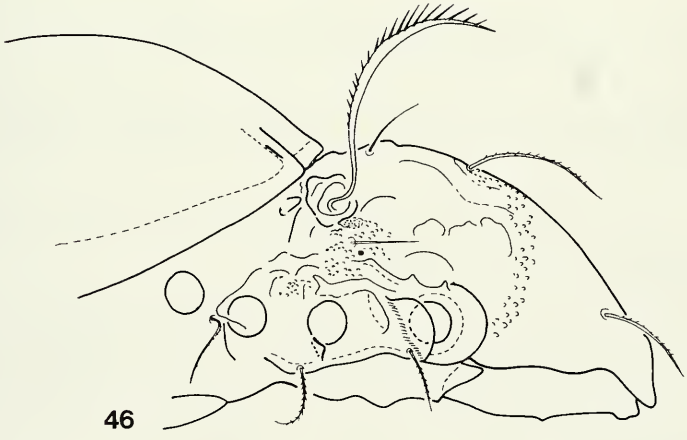
Material examined: Holotype: Mad-89/52, 3 paratypes from the same sample. Holotype and 2 paratypes: MHNG an 1 paratype (1477-PO-93): HNHM.

Measurements. - Length of body: 242-267 µm, width of body: 125-142 µm.

Prodorsum: Rostral apex dilated, blunt in dorsal aspect, beak-shaped in lateral aspect (Fig. 46). Lamellar crests strong, reaching beyond the insertion of the lamellar setae. From this insertion an arching row of pustules runs to the lateral margin (Fig. 44). Translamella absent. Two pairs of interbothridial spots and one pair of wide, longitudinal bridges observable in front of the dorsosejugal region. Bothridium with a basal knob, opposite to it a free tubercle also in the sejugal region (Fig. 46). Among the prodorsal setae, setae *ro* and *le* pilose, setae *in* and *ex* smooth. The ratio among them: *le* >*ro* >*in* = *ex*. Sensillus long, curved forwards and inwards. Exobothridial region pustulate.

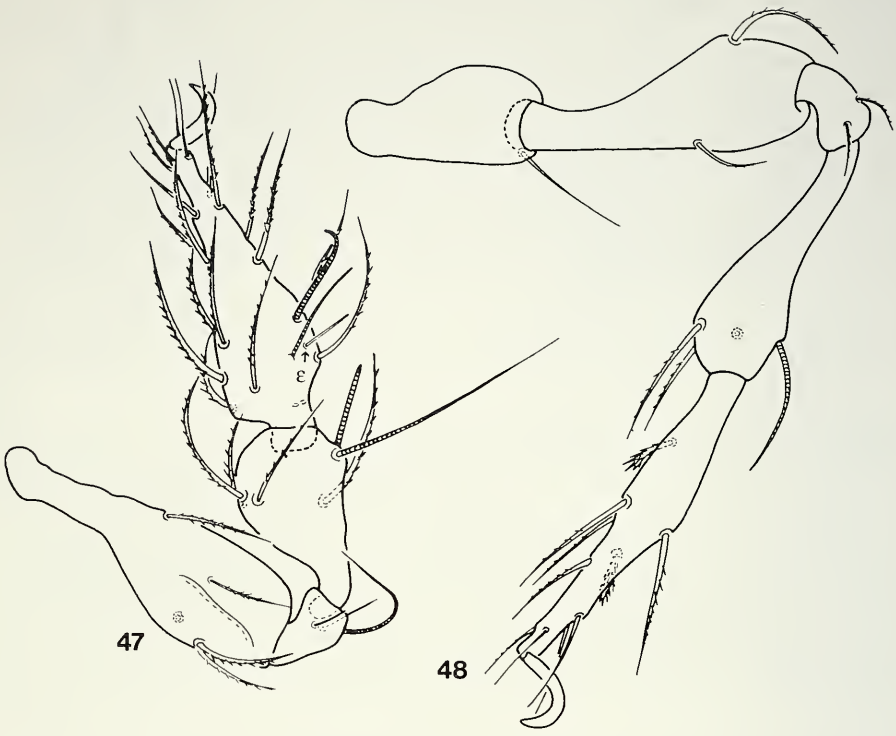






FIGS 44-46

Oxyoppia pustulata sp. n. – 44: dorsal aspect, 45: ventral aspect, 46: podosoma in lateral aspect.



FIGS 47-48

Oxyoppia pustulata sp. n. – 47: leg I, 48: leg IV.

N o t o g a s t e r : Humeral process continued in a well developed crista. Ten pairs of notogastral setae of different lengths present, all finely ciliate. Seta c_2 the shortest, directed forwards.

L a t e r a l r e g i o n o f p o d o s o m a : Above the acetabula of legs I-III the surface well pustulate and some longitudinal crests observable (Fig. 46). Pedotecta 1 normal, pedotecta 2-3 small, triangular.

C o x i s t e r n a l r e g i o n : Epimeral borders, especially the sejugal apodeme – excepting *bo. 4* – conspicuously wide, this latter one short, its lateral part absent, therefore epimere 4 open posterolaterally (Fig. 45). Epimeral plates not touching medially, a wide longitudinal fossa present. Epimeral surface ornamented by irregular spots, laterally some crests also present. Epimeral setae well ciliate, excepting *1a*, *2a* and *3a*.

A n o g e n i t a l r e g i o n : Genital aperture small, located far anteriorly, between *bo. 4*. Only four pairs of very short genital setae present. Other setae in the anogenital region longer and all finely ciliate. The direction of the lyrifissures *iad* parallel with the anal plates, but they are located far from the anal aperture.

L e g s : Tibia and tarsus of leg I (Fig. 47) and II wide, knob-shaped, the same joints of legs III and IV (Fig. 48) slender. ϵ of tarsus I conspicuously long, erect, straight, φ_2 on tibia I blunt at tip. Leg setal formulae are typically "oppioid":

I: 1 - 5 - 2+1 - 4+2 - 20+2 - 1
IV: 1 - 2 - 2 - 3+1 - 10 - 1

Two ventral setae of tarsus IV plumose.

R e m a r k s : On the basis of its habitus the new species without doubt belongs to the genus *Oxyoppia* Balogh & Mahunka, 1969. The group of species forming this genus has recently been subdivided by several authors; however, this subdivision is not satisfactory for *O. pustulata*. A further proof how difficult it is to separate the taxa within the family Oppiidae is the fact that the new species has only 4 pairs of genital setae, most of the known *Oxyoppia* species having six pairs. So far the only exception is *O. spiculifera* Mahunka, 1985 which also has 4 setae, although the sensillus of this latter species is different. The new species may readily be distinguished from all the other congeners by the reduction of its hind posterior border.

D e r i v a t i o n o m i n i s : After the pustules ordered in arching rows on the prodorsum.

Sphagnoppia alata sp. n. (Figs 49-53)

M a t e r i a l e x a m i n e d : Holotype: Mad-89/52, 2 paratypes from the same sample. Holotype and 1 paratype: MHNG and 1 paratype (1478-PO-93): HNHM.

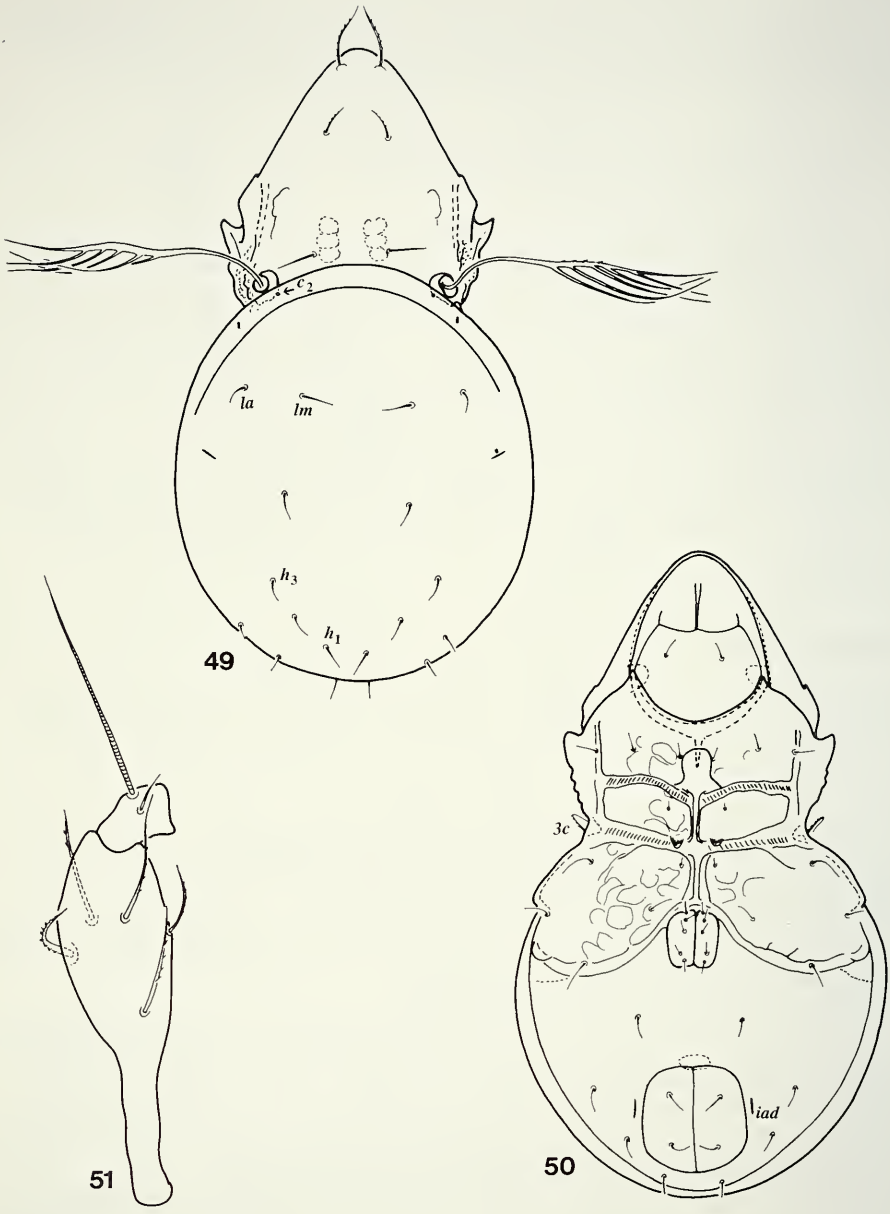
M e a s u r e m e n t s . - Length of body: 272-289 µm, width of body: 157-169 µm.

P r o d o r s u m : Rostrum widely rounded. Prodorsal surface without lamellar line or crest, three pairs of light spots present in the interbothridial region (Fig. 49). Ratio of the prodorsal setae *ro* >*in* = *ex* >*le*. Setae *ro* well ciliate, setae *le* sparsely ciliate and setiform, with filiform distal end; setae *in* and *ex* straight and smooth, blunt at tip. Sensillus extremely long, with 5 very long branches and some fine spines on the other margin. Exobothridial region pustulate.

N o t o g a s t e r : Well rounded in dorsal aspect (Fig. 49) and high (nearly semicircular in cross-section) in lateral aspect. Nine pairs of true setae and the alveoli of the vestigial c_2 setae present. All setae short, simple, smooth, no essential difference between them. Seta *lm* arising very far anteriorly, nearly along a transversal line with seta *la*. Setae h_1 - h_3 located near to each other, their insertions form a "V" shaped structure on the posteromedian part of the notogaster.

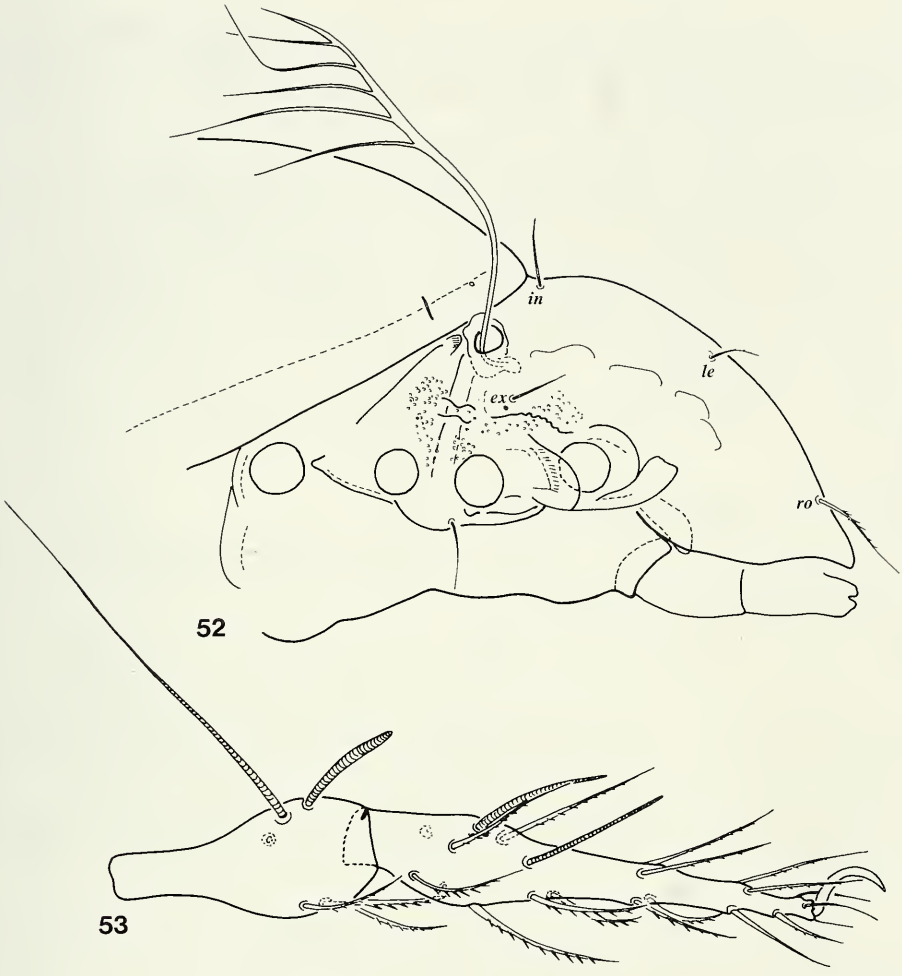
L a t e r a l r e g i o n o f p o d o s o m a : Behind the bothridium a tubercle present, on the sejugal suture a transversal band, near to the exobothridial setae a longitudinal crest observable. Pedotecta 1 small, pedotecta 2-3 completely reduced (Fig. 52).

C o x i s t e r n a l r e g i o n : Apodemes and epimeral borders well developed (Fig. 50), *bo. 4* characteristically arching posteriorly. Between epimere 1



FIGS 49-51

Sphagnoppia alata sp. n. – 49: dorsal aspect, 50: ventral aspect, 51: femur of leg I.



FIGS 52-53

Sphagnoppia alata sp. n. – 52: podosoma in lateral aspect, 53: tibia and tarsus of leg I.

an anteriorly and laterally framed median hollow present. On the sejugal borders one pair of posteriorly directed tubercles visible. Epimeral surface with a weak structure consisting of irregular spots. Epimeral setal formula: 3 - 1 - 3 - 3. All epimeral setae – excepting setae *3c* – simple, setae *3c* the longest of all.

A n o g e n i t a l r e g i o n : Genital plates small, anal ones nearly twice as wide and also much longer. Anogenital setal formula: 5 - 1 - 2 - 3. All setae short, anal setae finely ciliate. Lyrifissure *iad* in adanal position.

L e g s : All legs long, their joints slender, with the typical oppiid setal formula. Solenidia ω_1 and φ_2 of leg I (Figs 51, 53) characteristically directed inwards. $\varphi 2$ short and well thickened. Solenidium of genu III short and thick, no plumose ventral setae on tibia and tarsus IV.

R e m a r k s : The relationships of the new species are rather problematic. It has some important features (shape of prodorsal setae and sensillus, hollow in the epimeral region, position and number of setae in the anogenital region, etc.) which also characterise the type species of the genus *Sphagnoppia* Balogh & Balogh, 1986. However, some other significant characters (e.g.: the position of the notogastral setae) are quite different and other characters are not known from the type species, because the original description is not complete. In spite of this I provisionally place the new species into this genus.

D e r i v a t i o n o m i n i s : After the wing-like sensillus.

Rhynchoribates genavensium sp. n. (Figs 54-60)

M a t e r i a l e x a m i n e d : Holotype: Mad-89/29, 5 paratypes from the same sample; 8 paratypes: Mad-89/15. Holotype and 8 paratypes: MHNG, 5 paratypes (1479-PO-93): HNHM.

M e a s u r e m e n t s . Length of body: 611-667 µm, width of body: 193-417 µm.

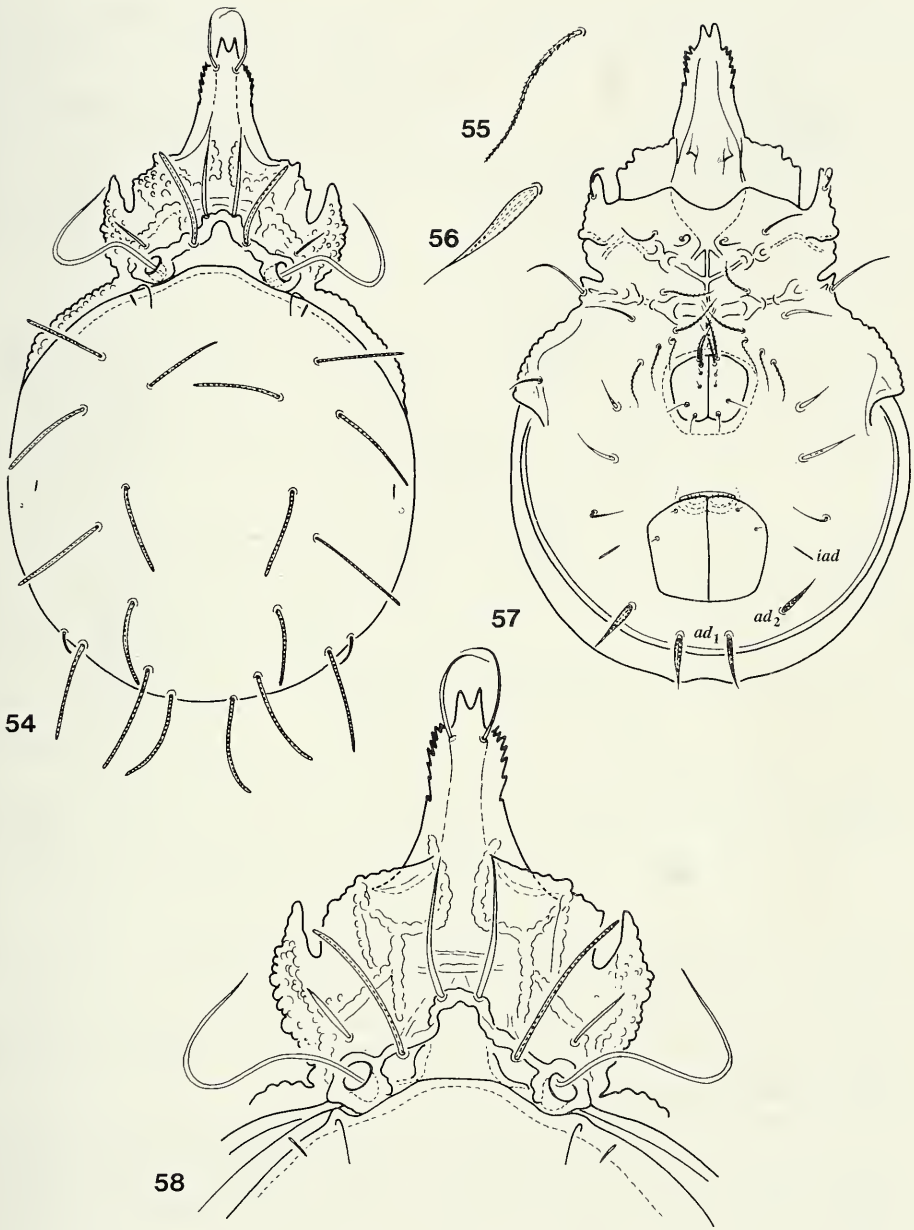
P r o d o r s u m : Rostral apex well protruding, deeply incised. Behind the apex of the rostrum, at the insertion of rostral setae, the rostrum suddenly dilated, and its margin serrated (7 long teeth on each side). Prodorsal surface ornamented by the typical formation of tubercles (Fig. 58) and laths. A strong, median, unpaired crest also present in front of the lamellar knob. Lamellar setae setiform, directed forwards, slightly shorter than the bacilliform interlamellar setae. Sensillus setiform, typically S-shaped.

N o t o g a s t e r : Dorsosejugal suture strongly convex, projecting between the bothridia anteriorly. One pair of humeral tubercles present. 10 pairs of typical, bacilliform notogastral setae present.

L a t e r a l r e g i o n o f p o d o s o m a : Behind the acetabula some crests present, and the surface between the crests and acetabula well pustulate.

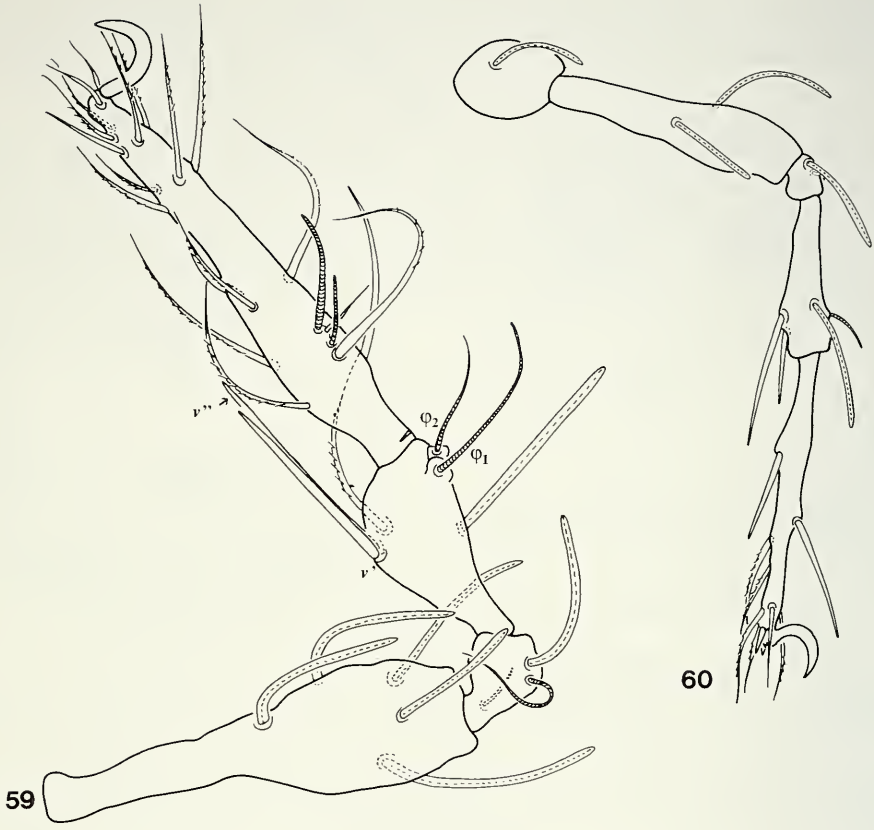
V e n t r a l r e g i o n s : Apodemes 2 and the sejugal apodeme divided by some transversal crests into subregions (Fig. 57). Epimeral setae mostly spiniform, slightly dilated and smooth. Among them seta *3c* much longer than *4c*. The anterior three pairs of setae of epimere 4 thin and flagellate (Fig. 55). Epimeral setal formula: 3 - 1 - 3 - 5. Six pairs of simple genital setae of varying lengths present, the anterior one being the longest, the median pair the shortest of all. Anal setae minute, the aggenital setae and the two pairs (ad_1, ad_2) of the adanal setae sword-shaped (Fig. 56). Lyrifissures *iad* in apoanal position.

L e g s : Solenidia φ_1 and φ_2 of tibia I arising on equally large tubercles (Fig. 59).



FIGS 54-58

Rhynchoribates genavensium sp. n. – 54: dorsal aspect, 55: seta *2a*, 56: seta *ag*, 57: ventral aspect, 58: podosoma in dorsal aspect.



FIGS 59-60

Rhynchoribates genavensium sp. n. – 59: leg I, 60: leg IV.

Setae *v'* and *v''* on all tibiae erect, spiniform. All tarsi – excepting tarsus I – bearing spiniform and typically dilated setae (e. g. tarsus IV, fig. 60); on tarsus I only spiniform and setiform setae present.

R e m a r k s : The Ethiopian *Rhynchoribates* Grandjean, 1929 species were recently reviewed by MAHUNKA (1985). The species belong to two species-groups distinguished by a rounded or incised rostrum. Until 1985 three species (*R. montanus* Balogh, 1962, *R. radula* Mahunka, 1983 and *R. subequalis* Balogh, 1962) belonged to the species group with an incised rostrum. Since then only one further species (*R. borhidii* Mahunka, 1986) has been described within this species group. On the basis of the form of rostral incisure the new species stands nearest to *R. montanus*. However, in the new species the rostral incisure is wider and deeper, the rostral teeth greater and longer as in *R. montanus*.

D e r i v a t i o n o m i n i s : In honour of the staff of the Arthropoda Department of the Geneva Museum.

Passalozetes (Passalozetes) lienhardi sp. n. (Figs 61-64)

M a t e r i a l e x a m i n e d : Holotype: Mad-89/43, 18 paratypes from the same sample; 8 paratypes: Mad-89/49. Holotype and 16 paratypes: MHNG and 10 paratypes (1480-PO-1993): HNHM.

M e a s u r e m e n t s : Length of body: 239-262 µm, width of body: 125-142 µm.

I n t e g u m e n t : Prodorsal surface ornamented by some irregular cells anteriorly, and thin, interrupted, reticular ridges basally. Notogastral surface with similar ridges anteriorly and medially, but pustules are minute and varying in size laterally and posteriorly, also medially among the ridges (Fig. 61). Surface of coxisternal and ventral plates with a similar pattern as anterior surface of notogaster. Genital plates nearly smooth, anal plates ornamented by weak wrinkles.

P r o d o r s u m : Costulae conspicuous, also a weak, convex transcostula visible. Rostral, lamellar and interlamellar setae fine, short, interlamellar setae shorter than the others and arising in a smooth field, without ridges. The rostral and lamellar setae arise at the same distance from each other (Fig. 64). Sensillus (Fig. 61) well ciliate, it seems distinctly barbed.

N o t o g a s t e r : Lenticulus absent. Notogastral setae comparatively long, these and the porose area well discernible. Areae porosae A_3 observable only from behind (Fig. 63).

V e n t r a l r e g i o n s : Apodeme weakly developed. Epimeral setae minute, epimeral setal formula: 3 - 1 - 3 - 2. Genital, aggenital, anal and adanal setae also minute, setae ad_1 in postanal and posteromarginal position (Fig. 62). Lyrifissures *iad* conspicuous, mostly irregular, but in all specimens in preanal position.

L e g s : All legs tridactylous and heterodactylous.

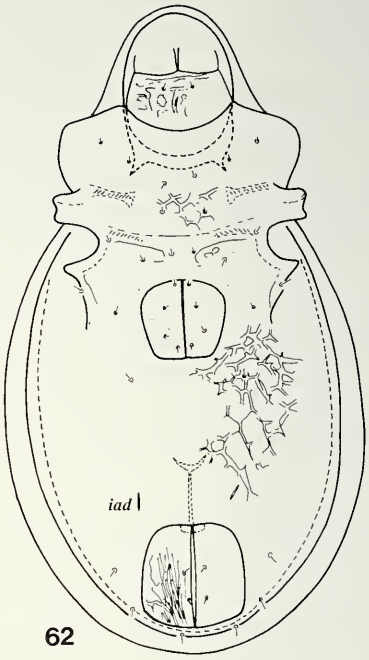
R e m a r k s : On the basis of the number of claws the new species belongs to the nominate subgenus. The form of the sensillus and the sculpture of the notogaster resemble those of the type species (*P. africanus* Grandjean, 1936). However, the new species differs from it by the pustulate posterior part of the notogaster and by the smooth genital plate (well sculptured in *P. africanus*).

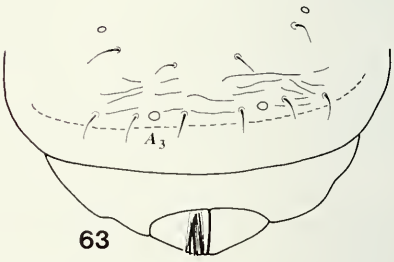
D e r i v a t i o n o m i n i s : I dedicate this new species to Dr. C. Lienhard (Geneva Museum) for his continuous help in the correction of my manuscripts and for his help in the collecting activity of Dr. B. Hauser.

Passalozetes (Bipassalozetes stat. nov.) **berndhauseri** sp. n. (Figs 65-68)

M a t e r i a l e x a m i n e d : Holotype: Mad-89/43, 32 paratypes from the same sample. Holotype and 20 paratypes: MHNG and 12 paratypes (1481-PO-93): HNHM.

M e a s u r e m e n t s . - Length of body: 206-234 µm, width of body: 111-128 µm.

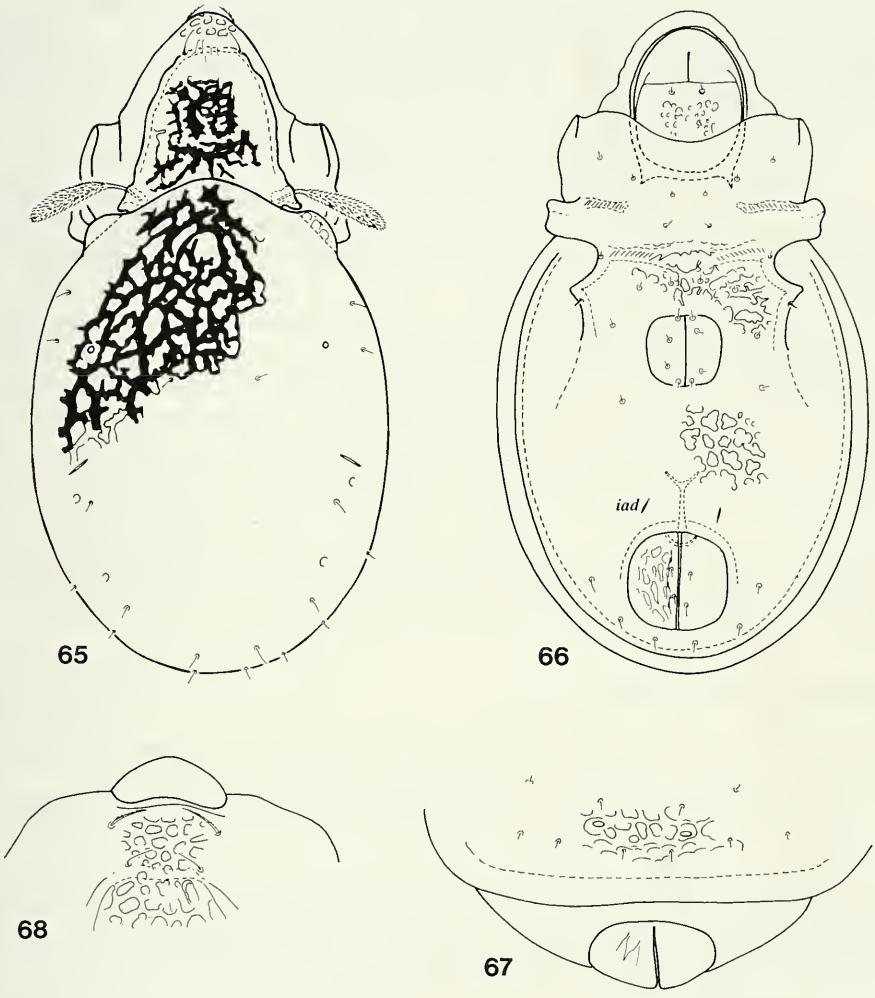




FIGS 61-64

Passalozetes (*Passalozetes*) *lienhardi* sp. n. – 61: dorsal aspect, 62: ventral aspect, 63: posteromarginal part of notogaster, 64: rostrum.

I n t e g u m e n t : Rostral part of prodorsum polygonate, median and basal part ornamented by irregular, but mostly confluent, and broad ridges. The whole surface of the notogaster ornamented with the same sculpture, but the lower intermediate fields seem to be areolae or with rounded spots. Ventral surface mostly with a similar ornamentation.



FIGS 65-68

Passalozetes (*Bipassalozetes*) *hauseri* sp. n. – 65: dorsal aspect, 66: ventral aspect, 67: posteromarginal part of the notogaster, 68: rostrum.

P r o d o r s u m : Rostral setae well ciliate, lamellar setae smooth (Fig. 68). No smooth field observable around the interlamellar setae. Sensillus with very short bristles, appearing distinctly barbed (Fig. 65).

N o t o g a s t e r : Lenticulus absent. A well developed projection present on shoulder. All ten pairs of notogastral setae minute, hardly discernible. Porose areas also small (Fig.65), A_3 only observable from behind (Fig. 67).

Ventral regions: In the sejugal region, in front of the genital aperture, a characteristic sculpture observable (Fig. 66). All epimeral setae minute, the epimeral setal formula is: 3 - 1 - 3 - 2. The surface of genital plates nearly smooth; the anal plates with similar, but more compact, ornamentation to the ventral plates. All setae in the anogenital region are minute, lyrifissures *iad* in preanal position.

Legs: All legs bidactylous and heterodactylous.

Remarks: On the basis of the notogastral sculpture the new species stands nearest to *P. pectinatus* Wallwork, 1964; however the form of the sensillus of these two species is completely different: setiform and pectinate in *P. pectinatus*; dilated and distinctly barbed in the new species.

I must remark that the shape of the sensillus has also been used as a differentiating character for supraspecific taxa. On the basis of this character and the number of claws the genus has been subdivided into two genera with *Passalozetes* (having the subgenera *Passalozetes* s. str. and *Passalomonia*) and *Bipassalozetes* (cf. BALOGH & BALOGH 1992). The new species definitely refutes this conception. The separation of the genus *Bipassalozetes* Mihelcic, 1965 is unjustified but, on the basis of the number of claws only, a subdivision of *Passalozetes* into three subgenera is justified.

Derivatio nominis: I dedicate this new species to my friend Dr. Bernd Hauser (Geneva Museum), the Swiss participant of our research programme (OTKA), who organised this successful collecting trip to Madagascar.

Oribatella madagascarensis sp. n. (Figs 69-74)

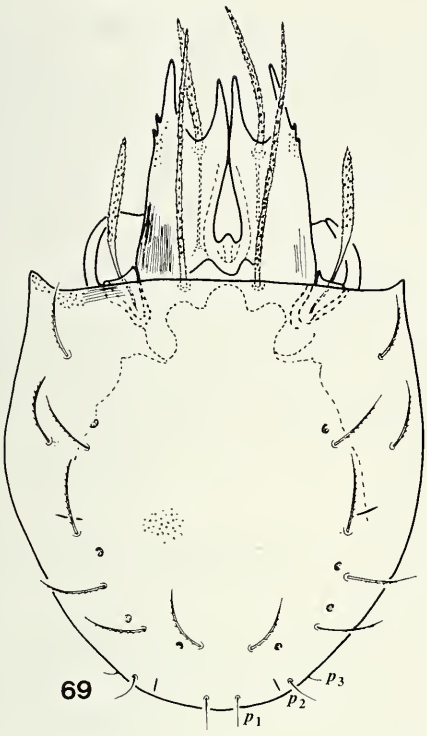
Material examined: Holotype: Mad-89/35, 1 paratype from the same sample. Holotype: MHNG, the paratype (1482-PO-93): HNHM.

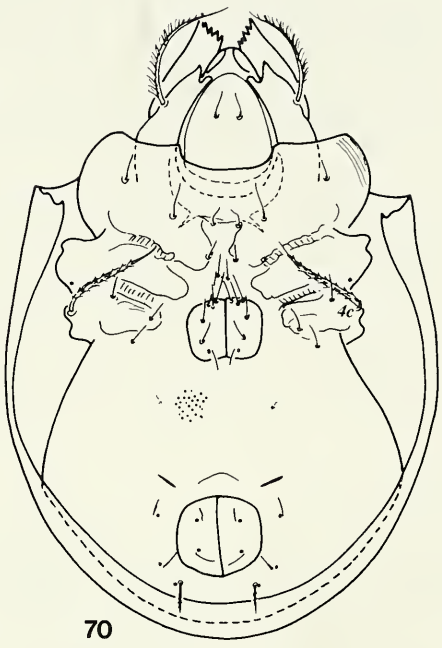
Measurements. - Length of body: 320-338 µm, width of body: 223-245 µm.

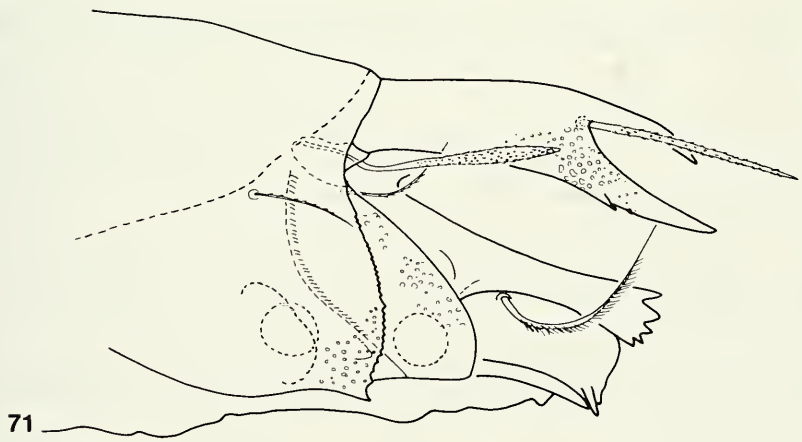
Prodorsum: Rostral apex (Fig. 73) deeply and widely incised, with a short median apex in this hollow, so that the rostral apex is tripartite, its surface foveolate. The large lamellae connected basally, a well-developed median knob also present. Outer apex distinctly longer than the median one, with 2 sharp and conspicuous teeth on its outer margin. Surface of lamellae having foveolae anteromedially and striae basally and medially. Lamellar setae setiform, arising from the middle of the tutoria, distinctly pilose. Lamellar and interlamellar setae robust, their surface spiculate. Sensillus slightly dilated medially, otherwise similar to the lamellar seta (Fig. 69).

Notogaster: Pteromorphae with well serrated anterior margin (Fig. 71), the surface well foveolate and partly striate. Notogastral surface with finer and smaller sculpture. Four pairs of small areae porosae. Ten pairs of notogastral setae present, 7 pairs of them thicker, longer and more pilose than the other three pairs in posteromarginal position (p_1 - p_3).

Lateral region of podosoma: Pedotecta 1 and 2-3 large, the first well foveolate. Tutorium narrow, with 5 large teeth on its anterior margin (Fig. 71).

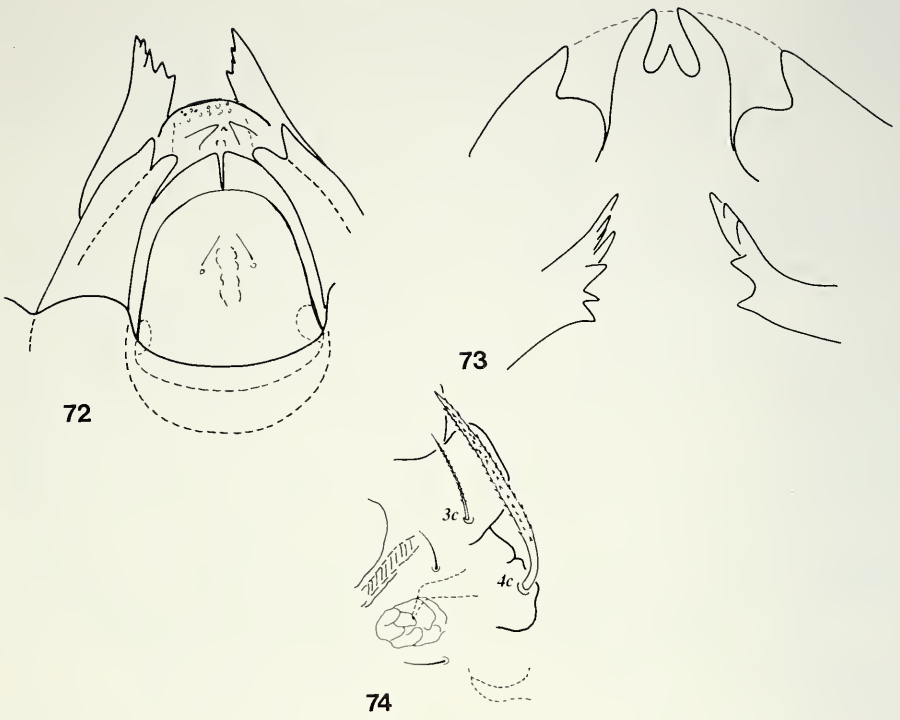






FIGS 69-71

Oribatella madagascarensis sp. n. – 69: dorsal aspect, 70: ventral aspect, 71: podosoma in lateral aspect.



FIGS 72-74

Oribatella madagascarensis sp. n. – 72: gnathosoma and rostrum in ventral aspect, 73: rostrum in anterior aspect, 74: lateral part of the epimeral region.

V e n t r a l r e g i o n s : Mentum large (Fig. 72), its surface smooth. Epimeral surface with smaller, ventral plate with larger foveolae. Epimeral setal formula: 3 - 1 - 3 - 3, their position shown in Fig. 70. Discidium rounded anteriorly, custodium absent (!). Setae *3c* arising on pedotecta 2-3 (Fig. 74), *4c* on discidium, large, thick, pilose.

L e g s : All legs monodactylous. Femora II-IV and trochanter III-IV with broad blade- like formation ventrally. On the surface of tibia I, between solenidia φ_1 and φ_2, a sharp apex observable.

R e m a r k s : The new species is well distinguished from all heretofore known species of the genus *Oribatella* by the absence of the custodium and by the form of the rostrum.

D e r i v a t i o n o m i n i s : After the name of the Island.

Lemurobates gen. n.

D i a g n o s i s : Family *Tegoribatidae*. Habitus like *Tegoribates* Ewing, 1917, prodorsum covered by the characteristically fused lamellae, interlamellar setae

absent. Sensillus with long pedicel, directed backwards. Bothridium with double cups which pass into an infundibuliform organ in the body. Pteromorphae movable. Notogaster with porose areas, among them *Aa* located in front of setae *la*. Mentum of "galumnoid" type. Near the gnathosoma an unknown arched, tubular structure observable. Epimeral setal formula 3 - 1 - 3 - 4, setae *1b* and *1c*, as *3b* and *3c* arising directly next to each other. Anogenital setal formula: 5 - 1 - 2 - 3. All legs monodactylous.

Type species: *Lemurobates antsiranana* sp. n.

Remarks: The new genus has some very characteristic features, which have not so far been recorded among Oribatida, e. g. the infundibuliform organ of the bothridium and the tubular structure near to the gnathosoma. Some additional features such as the position of the porose area *Aa*, the position of setae *1a*, *1b* and *3b*, *3c* are also unique within the family Tegoribatidae!

Derivatio nominis: After the Lemurs, a group of Primates endemic to Madagascar.

Lemurobates antsiranana sp. n. (Figs 75-81)

Material examined: Holotype: Mad-89/7, 22 paratypes from the same sample; 2 paratypes: Mad-89/19; 8 paratypes: Mad-89/35. Holotype and 18 paratypes: MHNG and 12 paratypes (1483-PO-93): HNHM and 2 paratypes in the personal collection of Dr. R. A. Norton (Syracuse University, New York, USA).

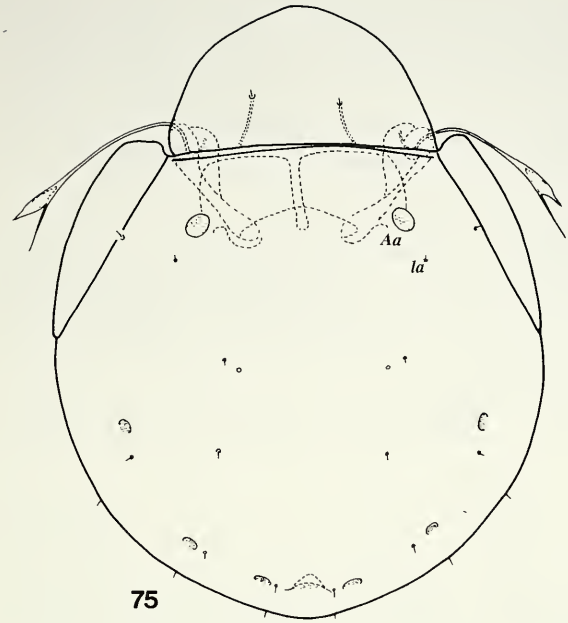
Measurements. - Length of body: 212-229 µm, width of body: 179-191 µm.

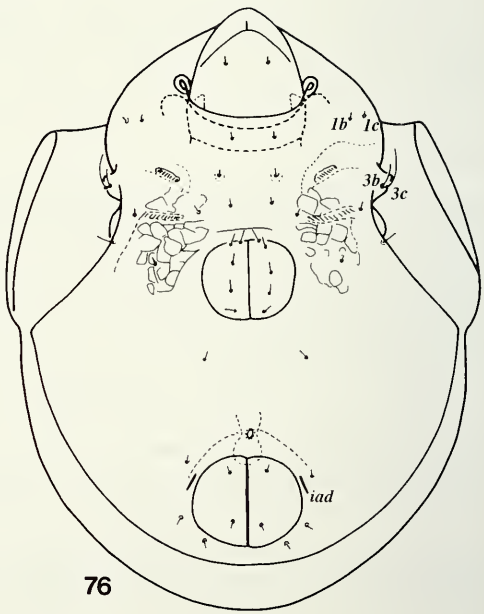
Prodorsum: The fused lamellae compose a large shield, lacking a larger hollow medially. It completely covers the prodorsum. Lamellar setae located in the median part of the shield, they are minute. The bothridium seems to be two confluent cups (Fig. 77). Sensillus directed outwards and backwards, long, with a lanceolate head; the ventral margin of this head bears a long, thin spine, reaching over the apex of the capitulum (Fig. 75).

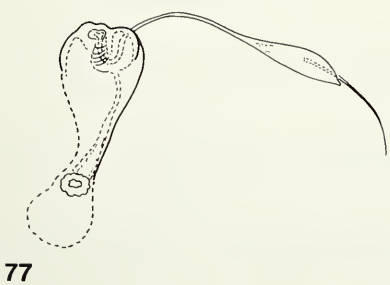
Notogaster: Pteromorphae slightly protruding anteriorly over the dorsosejugal suture, which is almost straight. Four pairs of areae porosae and ten pairs of minute notogastral setae present (I was not able to observe lyrifissures). Among the areae porosae *Aa* much larger than the others, which themselves are nearly equal in size. Posterior margin of notogaster with a small hollow (with pori?) (Figs 75, 81).

Gnathosoma: Chelicera normal, with very large teeth (Fig. 79). Palpal setal formula: 2 - 1- 3 - 7 + 1. Solenidium ω very long, nearly as long as seta *acm* (Fig. 78).

Ventral regions: Apodemes and epimeral borders weakly developed, mostly reduced. Epimeral surface ornamented by weak polygonate sculpture. Epimeral setae – excepting setae *3c* – short or minute. Anterior margin of genital plates with two pairs of setae. Anogenital setal formula 5 - 1 - 2 - 3. All setae in this region also minute. Lyrifissures *iad* in paraanal position (Fig. 76).

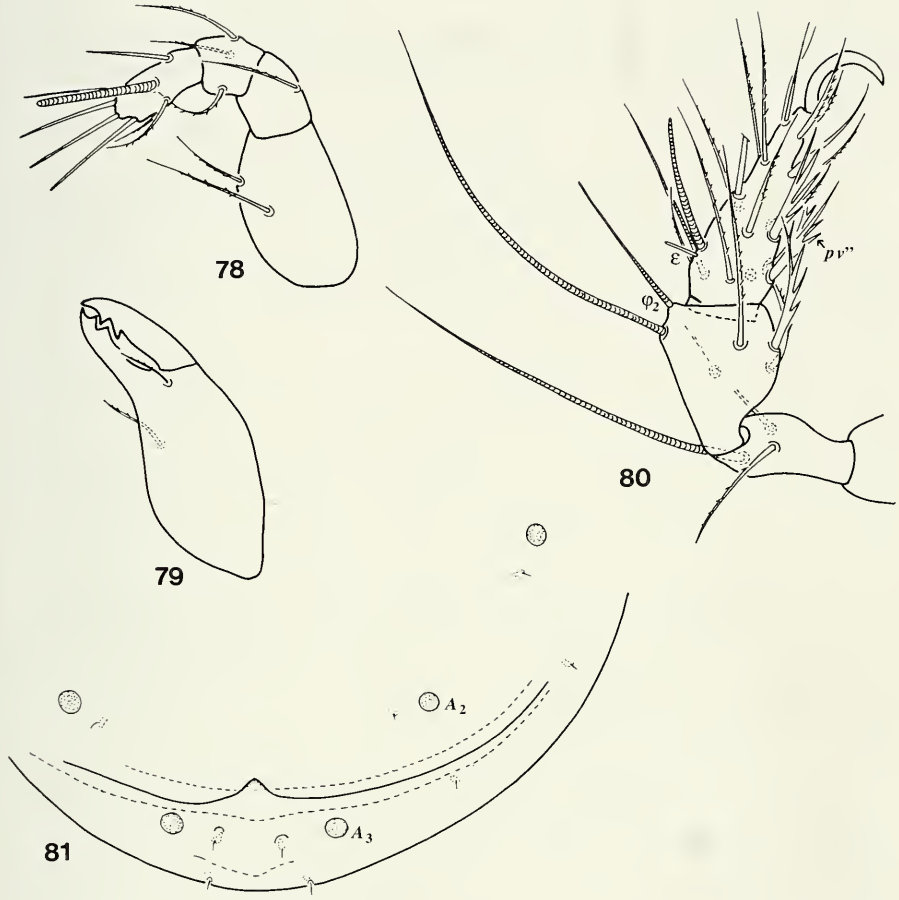






FIGS 75-77

Lemurobates antsiranana gen. n., sp. n. – 75: dorsal aspect, 76: ventral aspect, 77: trichobothrium.



FIGS 78-81

Lemurobates antsiranana gen. n., sp. n. – 78: palp, 79: chelicera, 80: leg I, 81: posterolateral part of the notogaster.

L e g s : Some ventral setae of leg I (*pv'*, *pv"* of tarsus) with thick and long spines, ε of tarsus I located behind the solenidia. Solenidium φ_2 on tibia I arising on a small tubercle. Leg setal formulae are

I: 1 - 4 - 2+1 - 4+2 - 18+2 - 1 (Fig. 80).

IV: 1 - 2 - 1+1 - 3+1 + 12 - 1

R e m a r k s : Some features are unique in the family Tegoribatidae (see ENGELBRECHT 1986).

D e r i v a t i o n o m i n i s : After the name of the City Antsiranana, formerly Diego Suarez.

Galumna ankaratra sp.n. (Figs 82-85)

Material examined: Holotype: Mad-89/22, 27 paratypes from the same sample. Holotype and 17 paratypes: MHNG and 10 paratypes (1484-PO-93): HNHM.

Measurements. - Length of body: 342-360 µm, width of body: 250-267 µm.

Prodorsum: Rostrum conical. Lamellar line much thinner than sublamellar one, lamellar setae arising between these lines (Fig. 84). Rostral and lamellar setae short, fine and smooth. Interlamellar setae represented only by their alveoli. Sensillus robust, pectinate, with an asymmetric, lanceolate head which bears 7-8 strong and long branches on its outer margin (Fig. 82). Areae porosae dorsosejugales large, gradually narrowing laterally.

Notogaster: Dorsosejugal suture interrupted medially, between the dorsophragmatic apophyses (*hy*). Median pore present also in the females (!). Ten pairs of alveoli of the vestigial notogastral setae present. Lyrifissure *im* located medially, conspicuously near to each other (Fig. 82). Areae porosae adalares (*Aa*) elongated transversally, only slightly incrassate laterally. All other three pairs of porose areas rounded, no essential difference between them.

Ventral regions: Epimeral region typical for this genus, but a conspicuous transversal band present above the genital plates. Six pairs of genital setae, 2 pairs of which are inserted near the anterior margins of the genital plates. All setae in the anogenital region very fine and short. A distinct, ovally elongated, large area porosa postanalis present (Fig. 83).

Legs: The position of the basal setae and the solenidium of tarsus and tibia I shown on Fig. 85.

Remarks: The new species is well characterised by the striking shape of its sensillus. On this basis it stands nearest to *G. comparabilis* Engelbrecht, 1972 among the Ethiopian *Galumna* species; however, *G. comparabilis* differs from the new species by the form of the areae porosae *Aa* (elongated in the new species) and the length of the branches of the sensillus (shorter in *G. comparabilis*).

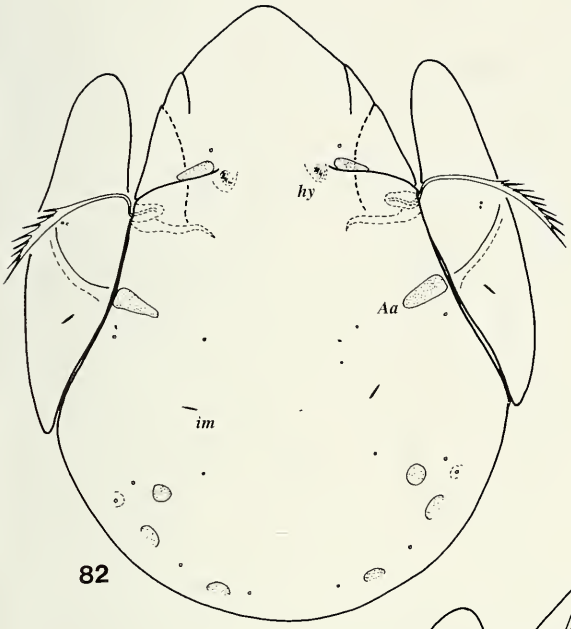
Derivatio nominis: After the name of the Ankaratra Massif, where this interesting material was collected.

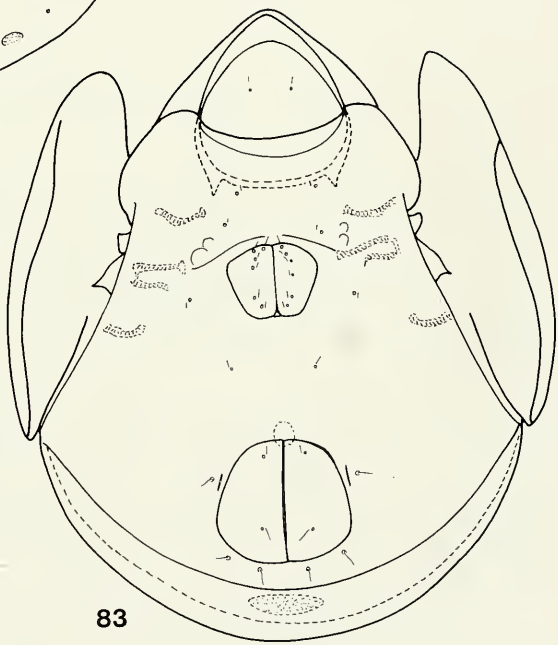
Galumna engelbrechti sp. n. (Figs 86-90)

Material examined: Holotype: Mad-89/35, 26 paratypes from the same sample. Holotype and 16 paratypes: MHNG and 10 paratypes (1485-PO-93): HNHM.

Measurements. - Length of body: 266-283 µm, width of body: 212-234 µm.

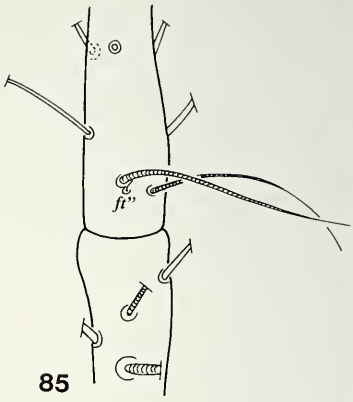
Prodorsum: Lamellar line (*L*) short, sublamellar line (*S*) long and well arched, they slightly diverge from each other (Fig. 88). Dorsosejugal areae porosae large, elliptical. Lamellar setae short, rostral setae slightly longer, interlamellar setae





FIGS 82-83

Galumna ankaratra sp. n. – 82: dorsal aspect, 83: ventral aspect.



FIGS 84-85

Galumna ankaratra sp. n. – 84: podosoma in lateral aspect, 85: group of solenidia of leg I.

represented only by their alveoli. Sensillus very long with an elongated head. Its distal end having some (5-7) small spines (Fig. 86).

N o t o g a s t e r : Dorsosejugal suture absent between the dorsophragmatic apophyses of the notogaster. Ten pairs of small alveoli present. Areae porosae *Aa* narrow, long, directed transversally. All others round, nearly equal in size. Lyrifissures *im* located medially (Fig. 86).

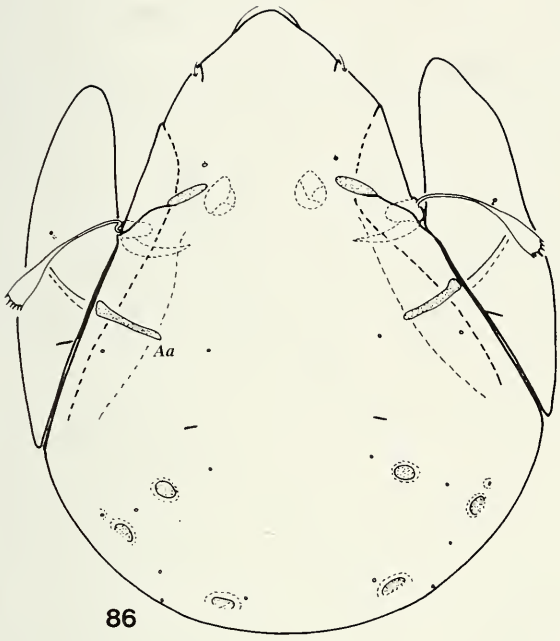
L a t e r a l r e g i o n s o f p o d o s o m a : Surface behind the sublamellar line with polygonate sculpture. Lines *T* and *E* strong, converging (Fig. 88).

V e n t r a l r e g i o n s : Epimeral surface with some spots, all epimeral setae minute (Fig. 87). 6 pairs of genital setae, 2 pairs of which arise on the anterior margins of the genital plates. Genital plates with one pair of longitudinal lines, near to the inner margin. All setae in the anogenital region also minute, their position and the lyrifissures *iad* shown on Fig. 87.

L e g s : Chaetotaxy of the legs having "galumnoid" characters. Tarsus I with solenidium ω_2 posteriorly (Fig. 89). Leg setal formulae are

I: 0 - 4 - 3+1 - 4+2 - 19+2 - 3 (Fig. 90)
IV: 1 - 2 - 2 - 3+1 - 12 - 3.

R e m a r k s : The taxonomic position of this new species is rather problematic because the median area porosa is absent in both sexes. In spite of this fact, in my opinion it belongs to the genus *Galumna* von Heyden, 1826. The new species



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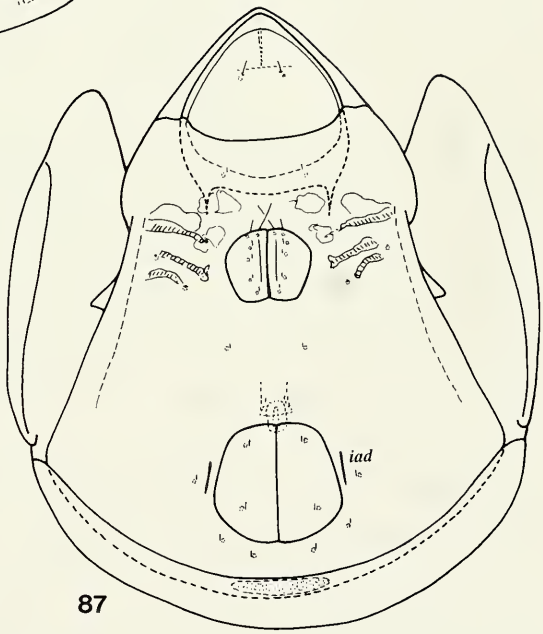

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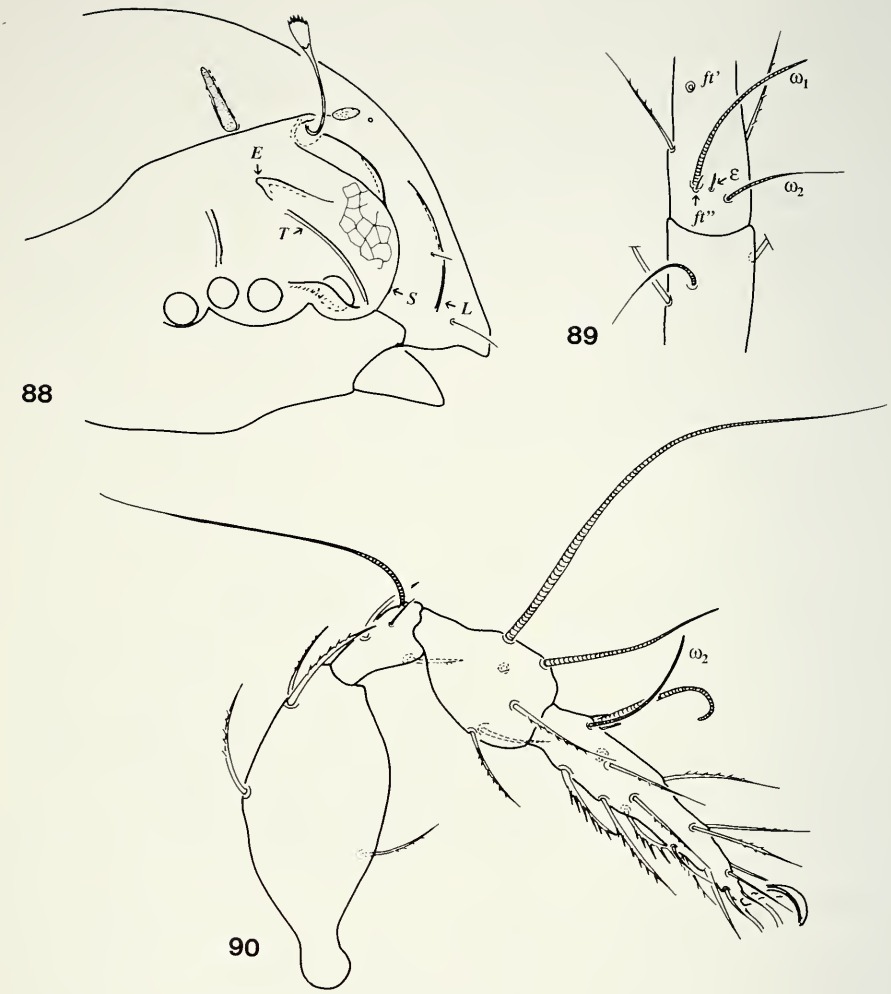
FIGS 86-87

Galumna engelbrechti sp. n. – 86: dorsal aspect, 87: ventral aspect.



FIGS 88-90

Galumna engelbrechti sp. n. – 88: podosoma in lateral aspect, 89: group of solenidia of leg I, 90: leg I.

differs from all heretofore known species of this genus by the especially narrow porose area *Aa*, and the form of the sensillus. The direction of the lamellar and sublamellar lines are also very characteristic.

D e r i v a t i o n o m i n i s : I dedicate the new species to Dr. C. M. Engelbrecht, Director of the National Museum, Bloemfontein, for his excellent work on African Oribatida.

Galumna tuberculata sp. n. (Figs 91-95)

Material examined: Holotype: Mad-89/29, 9 paratypes from the same sample. Holotype and 5 paratypes: MHNG and 4 paratypes (1486-PO-93): HNHM.

Measurements.- Length of body: 424-474 µm, width of body: 331-370 µm.

Prodorsum: Lamellar (*L*) and sublamellar (*S*) lines conspicuous, slightly convergent (Fig. 93). Lamellar and rostral setae short, glabrous and fine, interlamellar setae absent, represented only by their alveoli. Sensillus long, directed outwards, its head lanceolate, this part slightly asymmetric, unilaterally ciliate (Fig. 91). Areae porosae dorsosejugales large.

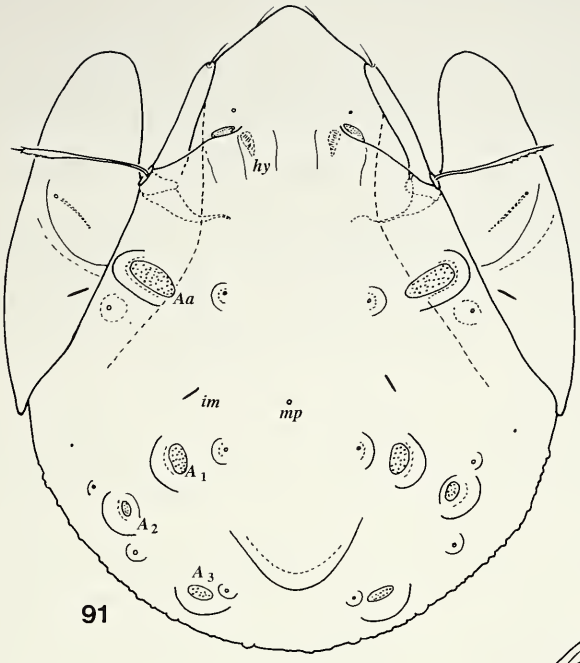
Notogaster: Dorsosejugal suture interrupted between the areae porosae dorsosejugales and the dorsophragmatic apophyses *hy*. Behind this region some longitudinal wrinkles observable, surface of notogaster with large and well sclerotised protuberances; some of them observable around the porose areas, others at the alveoli of the vestigial setae and one, the largest of all, in the posterior part of the notogaster medially. Among the porose areas *Aa* is the largest and elongated transversally. Of the other three pairs A_1 and A_2 are located near to each other, A_1 much larger than the others. Median pore (mp) present in the male specimens. Lyrifissures *im* located slightly more medially than normally, so they are situated characteristically near to each other (Fig. 91).

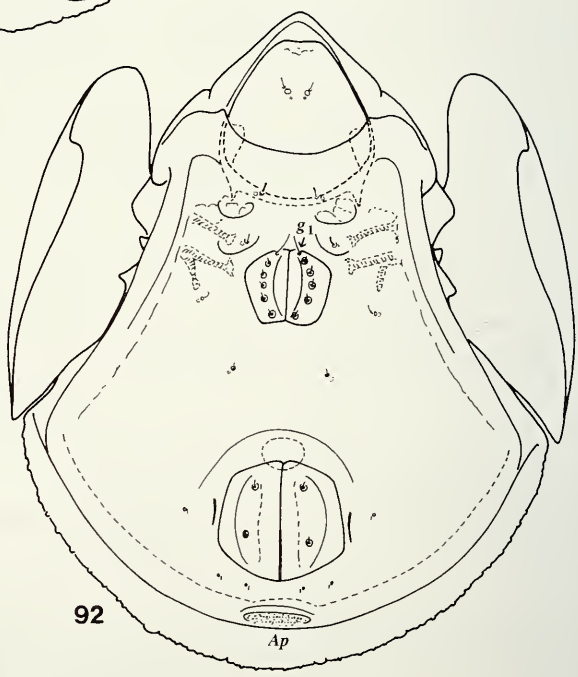
Ventral regions: Epimeral setation deficient, epimeral surface ornamented by some weak spots. Only one pair of setae arising on the anterior margin of genital plates, all others inserted along a longitudinal line behind it (Fig. 92). Seta g_1 comparatively long, its basis simple, the other 5 simple, very short, with an annular formation at their bases. All other setae in the anogenital region very short and simple, all seem to be rigid. Anal plates with a strongly protruded, longitudinal median "blade" (Fig. 95). A distinct, large and oval area porosa postanalis (*ap*) present. Among the adanal setae ad_1 and ad_2 inserted behind the anal aperture, setae ad_3 and lyrifissures *iad* located in adanal position.

Legs: The position of the basal setae and the solenidium of tarsus and tibia I shown in Fig. 94.

Remarks: The notogastral structure of the new species is unique in the family Galumnidae.

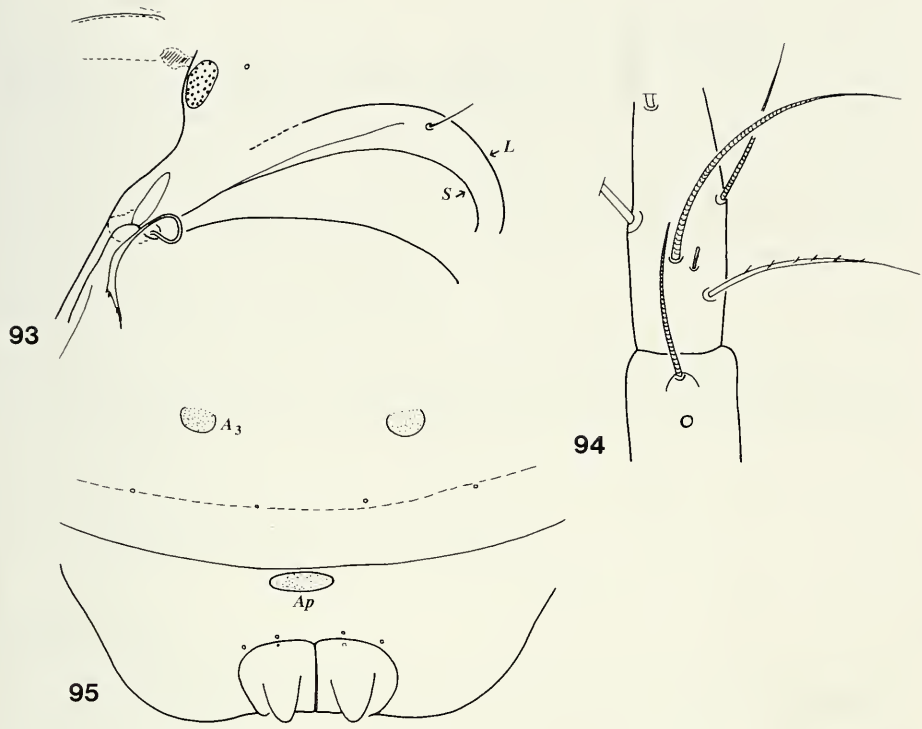
Derivatio nominis: After the structure of the notogaster consisting of large tubercles.





FIGS 91-92

Galumna tuberculata sp. n. – 91: dorsal aspect, 92: ventral aspect.



FIGS 93-95

Galumna tuberculata sp. n. – 93: dorsosejugal and lamellar region in anterolateral aspect, 94: group of solenidia of leg I, 95: body in posterior aspect.

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